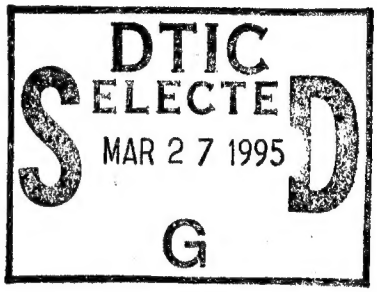
United States Air Force
611th Civil Engineer Squadron

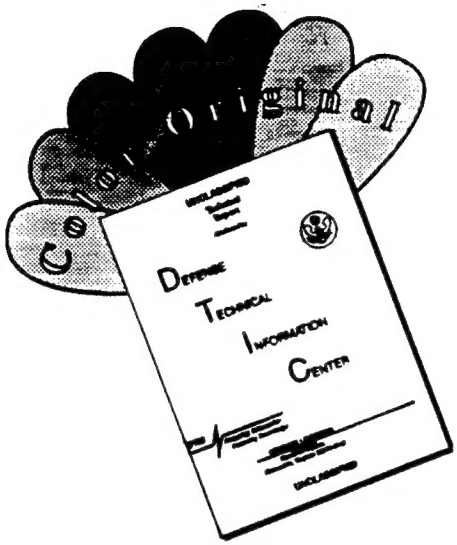
Elmendorf AFB, Alaska



Final
Preliminary Assessment/Site Inspection
Kalakaket Creek Radio Relay Station
Alaska

March 1995

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF COLOR PAGES WHICH DO NOT REPRODUCE LEGIBLY ON BLACK AND WHITE MICROFICHE.

DCN 95-640-305-10

United States Air Force
611th Civil Engineer Squadron

Elmendorf AFB, Alaska

Final
Preliminary Assessment/Site Inspection
Kalakaket Creek Radio Relay Station
Alaska

March 1995

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	March 1995	Report, March 1995

4. TITLE AND SUBTITLE

Preliminary Assessment/Site Inspection, Kalakaket Creek Radio Relay Station, Alaska

5. FUNDING NUMBERS

C-F41624-94-D-8049-0005

6. AUTHOR(S)

Radian Corporation

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Radian Corporation
P.O. Box 201088
8501 N. Mopac Blvd.
Austin, Texas 78759

8. PERFORMING ORGANIZATION REPORT NUMBER

95-640-305-10

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

AFCEE/ESR
8001 Inner Circle, Ste. 2
Brooks AFB, Texas 78235-5328

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for Public Release
Distribution is Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

The Air Force has conducted a Preliminary Assessment/Site Inspection (PA/SI) at Kalakaket Creek RRS, Alaska. This PA/SI report describes the Areas of Concern (AOC) present at the facility that were identified through the literature search, personnel interviews, and site inspections. The activities completed during the performance of the PA/SI and the findings of the investigation are summarized. The report also provides conclusions based on these results and presents recommendations for additional response actions or investigations where appropriate.

14. SUBJECT TERMS

Draft Preliminary Assessment/Site Inspection
Kalakaket Creek Radio Relay Station, Alaska

15. NUMBER OF PAGES

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

PRELIMINARY ASSESSMENT/SITE INSPECTION DISCLAIMER

NOTICE

This report has been prepared for the United States Air Force by Radian Corporation for the purpose of aiding the implementation of a final remedial action plan under the Air Force Installation Restoration Program (IRP). As the report relates to actual or possible releases of potentially hazardous substances, its release prior to an Air Force final decision on remedial action may be in the public's interest. The limited objectives of this report and the ongoing nature of the IRP, along with the evolving knowledge of site conditions and the chemical effects on the environment and health, must be considered when evaluating this report since subsequent facts may become known that may make this report premature or inaccurate. Acceptance of this report in performance of the contract under which it is prepared does not mean that the Air Force adopts the conclusions, recommendations, or other views expressed herein, which are those of the contractor only and do not necessarily reflect the official position of the United States Air Force.

Copies of the final version of this report may be purchased from the following:

Government agencies and their contractors registered with the Defense Technical Information Center (DTIC) should direct requests for copies of this report to the Defense Technical Information Center, Cameron Station, Alexandria, VA 22304-6145.

Non-Government agencies may purchase copies of this document from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161.

Page

LIST OF FIGURES

LIST OF TABLES

List of Acronyms and Abbreviations

ABAL	areas below action levels
AFB	Air Force Base
AH	aromatic hydrocarbons
AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
BTEX	benzene, toluene, ethylbenzene, xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEOS	Civil Engineering Operations Squadron
CES	Civil Engineer Squadron
CHF	contaminant hazard factor
cm/sec	centimeters per second
DDT	dichlorodiphenyl trichloroethane
DoD	Department of Defense
DRO	diesel range organics
DSA	drum storage area
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
ft	foot or feet
GRO	gasoline range organics
HMTC	Hazardous Materials Technical Center
in.	inch or inches
IR	infrared
IRP	Installation Restoration Program
MPF	migration pathway factor
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
MSL	mean sea level
NFRAP	no further response action planned
OVM	organic vapor monitor
PA	preliminary assessment
PCBs	polychlorinated biphenyls
PNAs	polynuclear aromatic hydrocarbons
POL	petroleum, oils, and lubricants
ppb	parts per billion
ppm	parts per million
RBC	risk-based concentration

RF	receptor factor
RRS	radio relay station
SARA	Superfund Amendment and Reauthorization Act
SI	site inspection
SQL	sample quantitation limit
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbons
USAF	United States Air Force
UST	underground storage tank
UTL	upper tolerance limit
VOC	volatile organic compound

EXECUTIVE SUMMARY

The U.S. Air Force is conducting a preliminary assessment/site inspection (PA/SI) at Kalakaket Creek Radio Relay Station (RRS), Alaska. The objective of the PA/SI is to identify and evaluate areas of concern (AOCs) that may pose a threat to human health and the environment and to recommend future activities at these locations.

The purpose of this report is to summarize the activities and findings of the investigation and, on the basis of this information, make recommendations on the future remedial actions and investigations required at the AOCs. AOCs recommended for no further action are also identified.

Background

Kalakaket Creek RRS was one of the original White Alice Communication System sites, which was in operation from 1957 to 1973. After satellite communication made radio communication obsolete, the facility was closed and abandoned. The Air Force conducted a site cleanup effort in 1984 to remove hazardous and toxic materials that remained on site after closure. The Air Force also conducted initial PAs in 1989 and 1994. The PA/SI results discussed in this report are from investigation activities conducted between July and December 1994.

Currently there are two sites at Kalakaket Creek RRS that are identified in the Work Information Management System—Environmental Subsystem (WIMS-ES) database. Site OT001 is described as the White Alice Site and refers to the entire facility. The assignment of a facility-wide WIMS-ES identification for all White Alice facilities appears to have been a common practice. Rather than investigating the entire facility as one site, several source-related AOCs have been inspected under this PA/SI. Site OT001 may require an administrative delisting and replacement with the specific AOCs identified by this study. Site LF002 describes the landfill near the northeast end of the runway. This site could not be located during this PA/SI.

Sixteen AOCs were identified during this investigation. A brief description and evaluation of contaminants of potential concern for each AOC follows.

Antenna Day Tanks—Antennas were kept from icing by several large furnaces and blowers; six day tanks supplied fuel to the furnaces. Stained soils were not observed. Wastes potentially released consisted of fuel from six day tanks. Contaminants of potential concern consisted of gasoline range organics (GRO) and diesel range organics (DRO).

Vehicle Maintenance Garage—This building was used for vehicle storage and maintenance. Waste oils and other liquids may have been poured onto the ground outside the building. Stained soils were found outside the doorways. Wastes potentially released consisted of waste oils, fuels, and solvents. Contaminants of potential concern consisted of GRO, DRO, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals.

Paint Storage Building—This building was used to store paints, thinners, and other small containers of chemicals temporarily. No stained soils were observed. Wastes potentially released consisted of paints, thinners, and chemicals. Contaminants of potential concern consisted of VOCs, SVOCs, metals, polychlorinated biphenyls (PCBs), and pesticides.

Equipment Building—This building housed large diesel generators used to power the station. Fuel was delivered through a buried

pipeline from the diesel tanks. Stained soils were observed. Wastes potentially released consisted of diesel fuel, waste oil, and solvents. Contaminants of potential concern consisted of GRO, DRO, VOCs, PCBs, pesticides, and metals.

Equipment Building Transformers—Leaks or maintenance activities released insulating oils to the soil surrounding the transformer pad. PCB-contaminated soils were excavated in 1984. Stained soils were not found at this AOC. Wastes potentially released consisted of insulating oils containing PCBs. Contaminants of potential concern consisted of PCBs.

Diesel Tanks and Fill Area—Two 3000-barrel aboveground storage tanks held fuel oils used to generate heat and electricity. Soils in this AOC were stained. Wastes potentially released consisted of diesel fuel. Contaminants of potential concern consisted of GRO and DRO.

Septic Tank Outfall—Effluent wastewater from the septic tank was released onto the ground on a steep hill slope. Waste liquids other than water may have been discharged. The outfall area was stained rust color. Wastes potentially released consisted of waste liquid chemicals. Contaminants of potential concern consisted of DRO, GRO, VOCs, SVOCs, PCBs, pesticides, and metals.

Gasoline Tank—This small aboveground gasoline tank was surrounded by concrete walls and gravel. The tank was used to power the fire pump. No areas of stained soil were found in this AOC. Wastes potentially released consisted of fuel. Contaminants of potential concern consisted of GRO and DRO.

Drum Storage Area #1—The "barrel storage dock" is located 100 ft north of the Vehicle Maintenance Garage. Drums have been removed and the area is covered with gravel, debris, and alders. An area of stained soil was noted north of this AOC, thus increasing the area of investigation. Wastes potentially released consisted of fuel, oil, solvents, and pesticides. Contaminants of potential concern consisted of GRO, DRO, VOCs, SVOCs, PCBs, pesticides, and metals.

Drum Storage Area #2—This area of stained soil is located north of the eastern edge of the runway; vegetation has been disturbed. Although not confirmed, this area has been identified as the site of the refuse landfill. Drums have been removed. Wastes potentially released consisted of fuel, oil, solvents, pesticides, and solid waste. Contaminants of potential concern consisted of GRO, DRO, VOCs, SVOCs, PCBs, pesticides, and metals.

Drum Storage Area #3—This area is located on the southeastern portion of the runway; alders and willows vegetate the area. The drums and PCB-contaminated soils have been removed. Stained soils were observed. Wastes potentially released consisted of fuel, oil, solvents, and pesticides. Contaminants of potential concern consisted of GRO, DRO, VOCs, SVOCs, PCBs, pesticides, and metals.

Temporary Garage—The temporary garage was used to store vehicles and possibly for refueling activities. Some light maintenance may have also occurred. No stained soils were noticed. Wastes potentially released consisted of fuel. Contaminants of potential concern consisted of GRO, DRO, and metals.

Temporary Diesel Tanks—This 1000-barrel aboveground storage tank received diesel from aircraft. Fuel was then transferred to the main tanks by trucks. Stained soils were not observed. Wastes potentially released consisted of diesel fuel. Contaminants of potential concern consisted of GRO and DRO.

Water Pump House—Two diesel-powered pumps were used to fill the water storage

tanks. Fuel oil drums were stored at the southeast corner of the building. Wastes potentially released consisted of diesel fuel. Contaminants of potential concern consisted of GRO and DRO.

Remote Drum Cache—Empty and partially full drums were rolled down a hill into a ravine north of the station. Drums contained lube oil, mogas, antifreeze, combat gas, and roofing tar. Some drums have leaked and stained surface soils. Wastes potentially released consisted of lube oil, mogas, antifreeze, combat gas, and roofing tar. Contaminants of potential concern consisted of GRO, DRO, VOCs, SVOCs, PCBs, pesticides, and metals.

Landfill—Facility refuse landfill located north of the northeast end of the runway. This is the landfill identified as LF002 in the WIMS-ES database. Wastes potentially released consisted of all materials used at the facility. Contaminants of potential concern consisted of GRO, DRO, VOCs, SVOCs, PCBs, pesticides, and metals. The exact location of the landfill could not be determined in the field.

Results

All AOCs were visually inspected during field activities. Soil screening samples were collected at 13 of the AOCs and laboratory analytical samples were collected at 14 of the AOCs. Table ES-1 summarizes the sampling activities that occurred at each AOC. The laboratory analytical results were screened by comparing them with EPA Region III risk-based screening criteria (RBCs), State of Alaska or EPA cleanup standards, and statistically calculated background concentrations for inorganic constituents.

Recommendations

The screening of results identified possible contaminants of potential concern that were used to evaluate the need for further action at each AOC. Table ES-2 provides a summary of the analytical results and the recommendations for each AOC.

Table ES-1
Summary of 1994 PA/SI Soil Sampling Activities at Kalakaket Creek RRS, Alaska 1994

Area of Concern	Field Screenings				Laboratory Analysis					
	TPH	PCB	DDT	VOCs (Headspace)	GRO AK101	DRO AK102	Volatile Organics SW8240	Semivolatile Organics SW8270	Pesticides and PCBs SW8080	Metals SW6010
Antenna Day Tanks	8	-	-	-	2	2	-	-	-	-
Vehicle Maintenance Garage	8	-	-	-	4	4	4	4	-	4
Paint Storage Building	-	-	-	8	-	-	4	4	4	4
Equipment Building	10	10	-	-	4	4	4	-	4	4
Equipment Building Transformers	-	10	-	-	-	-	-	-	4	-
Diesel Tanks and Fill Area	6	-	-	-	3	3	-	-	-	-
Septic Tank Outfall	-	-	-	-	1	1	1	1	1	1
Drum Storage Area #1	14	14	14	-	2	2	2	2	2	2
Drum Storage Area #2	6	6	6	-	2	2	2	2	2	2
Drum Storage Area #3	6	7	6	-	2	2	2	2	2	2
Temporary Garage	8	-	-	-	1	1	-	-	-	1
Temporary Diesel Tank	6	-	-	-	1	1	-	-	-	-
Gasoline Tank	-	-	-	2	-	-	-	-	-	-
Water Pump House	4	-	-	-	1	1	-	-	-	-
Remote Drum Cache	-	-	-	-	-	-	-	-	-	-
Landfill	-	-	-	-	-	-	-	-	-	-

- Indicates no samples collected for this analysis

Table ES-2
Summary of Results and Recommendations for AOCs Evaluated for Kalakaket Creek RRS PA/SI

AOC Name	Contaminants Detected in Soil that Exceed Screening Criteria		Recommendations
Antenna Day Tanks	DRO	8400 mg/kg	Drain POL lines.
Vehicle Maintenance Garage	DRO lead	23,000 mg/kg 200 mg/kg	Close gasoline UST.
Paint Storage Building	PCB-1260	1.44 mg/kg	No further response action planned.
Equipment Building	DRO lead 4,4'-DDT dieldrin PCB-1260	3600 mg/kg 56 mg/kg 3.4 mg/kg 0.128 mg/kg 9.79 mg/kg	Drain POL lines.
Equipment Building Transformers	Dieldrin PCB-1260	0.357 mg/kg 124.0 mg/kg	The excavated area in front of the transformer pad should be excavated further to remove all soils containing more than 50 ppm PCBs.
Diesel Tanks and Fill Area	None		No further response action planned.
Septic Tank Outfall	antimony lead 4,4'-DDE dieldrin heptachlor epoxide PCB-1260	257 mg/kg 219 mg/kg 2.05 mg/kg 1.95 mg/kg 0.539 mg/kg 131.0 mg/kg	No further response action planned.
Gasoline Tank	None		No further response action planned.
Drum Storage Area #1	DRO	7200 mg/kg	No further response action planned.
Drum Storage Area #2	DRO benzo(a)anthracene PCB-1248 PCB-1260	320,000 mg/kg 3.87 mg/kg 93.5 mg/kg 6730 mg/kg	Remove stained soils contaminated with PCB.
Drum Storage Area #3	DRO 4,4'-DDT	36,000 mg/kg 2.048 mg/kg	No further response action planned.
Temporary Garage	None		No further response action planned.
Temporary Diesel Tanks	None		No further response action planned.
Drum Cache	Not sampled		Remove drums and stained soil.
Water Pump House	DRO	7100 mg/kg	Remove stained/contaminated soil. Remove partially full lube oil drums.
Landfill	Not Sampled		No further response action planned.

Section 1
INTRODUCTION

A Preliminary Assessment/Site Inspection (PA/SI) was conducted at Kalakaket Creek Radio Relay Station (RRS) under the U.S. Air Force (USAF) Installation Restoration Program (IRP). Figure 1-1 shows the location of the Kalakaket Creek RRS. This investigation was performed in compliance with provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended in 1986 by the Superfund Amendment and Reauthorization Act (SARA). This document summarizes previous findings and presents the results, conclusions, and recommendations of the PA/SI.

Activities associated with this PA/SI were performed during the period of July through December 1994. PA/SI activities included:

- A review of previously completed PAs of the site;
- A records search;
- Interviews with personnel who worked at the station and were involved in site restoration activities;
- An initial site visit;
- Development of a work plan, sampling and analysis plan, and health and safety plan;
- A site inspection; and
- Postinspection documentation and reporting.

Site inspection included soils sampling for both field screening and laboratory analysis. Methods and procedures utilized during the PA/SI are detailed in the scoping documents entitled *Addendum to the Work Plan, Galena Airport and Kalakaket Creek Radio Relay Station, Alaska* (USAF, 1994b); *Addendum to the Sampling and Analysis Plan, Galena Airport and Kalakaket Creek Radio Relay Station, Alaska* (USAF, 1994a); and *Health and Safety Plan, Kalakaket Creek Radio Relay Station, Alaska* (USAF, 1994c).

1.1 Project Objectives

Within the framework of the IRP, the objective of the study is to evaluate areas of concern (AOCs) identified during past PA activities and through recent information-gathering activities. The AOCs include potential hazardous waste disposal, handling, and spill locations at Kalakaket Creek RRS. This evaluation includes determining the nature of possible contaminants (their presence or absence), determining the physical characteristics of the AOCs that may affect contaminant distribution, and defining possible receptors and contaminant migration pathways. For sites that may pose a threat to human health and welfare or to the environment, remedial actions will be developed through the IRP process, consistent with the National Contingency Plan (NCP). AOCs that are shown to pose no threat to human health or the environment will be recommended for no further response action planned (NFRAP) in accordance with the *U.S. Air Force Environmental Restoration Program NFRAP Guide: Making, Documenting, and Evaluating No Further Response Action Planned Decisions* (USAF, 1993). The project objectives are achieved through the staged IRP process in which conclusions and recommendations made from accurate and validated data are used to guide subsequent activities.

1.2 Project Approach

This PA/SI was planned in stages to ensure the collection of data to support recommendations for either further action or no further action for each AOC. A flow diagram illustrating the approach used for the PA/SI is shown in Figure 1-2. Further action at an AOC could in

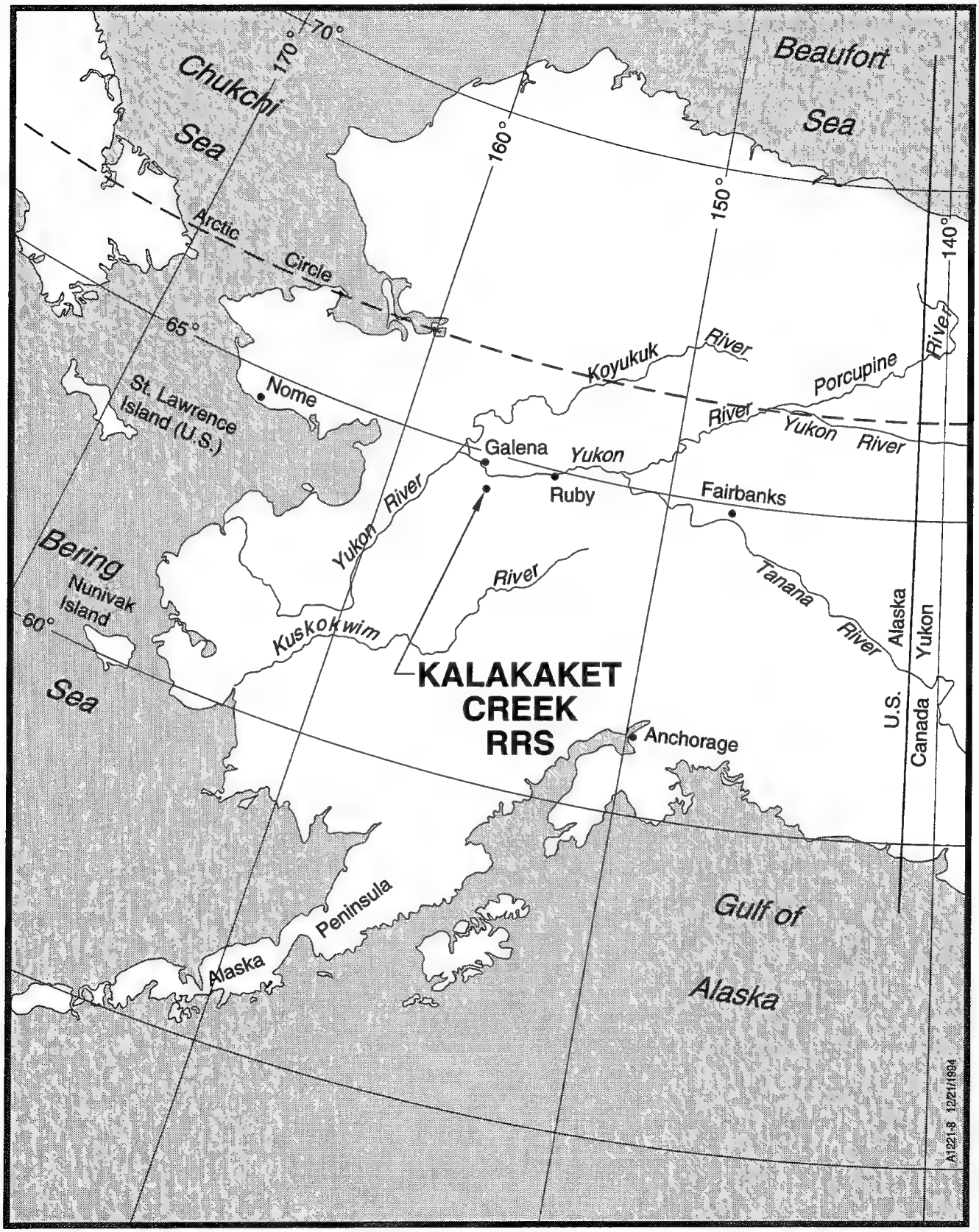


Figure 1-1. Location of Kalakaket Creek RRS

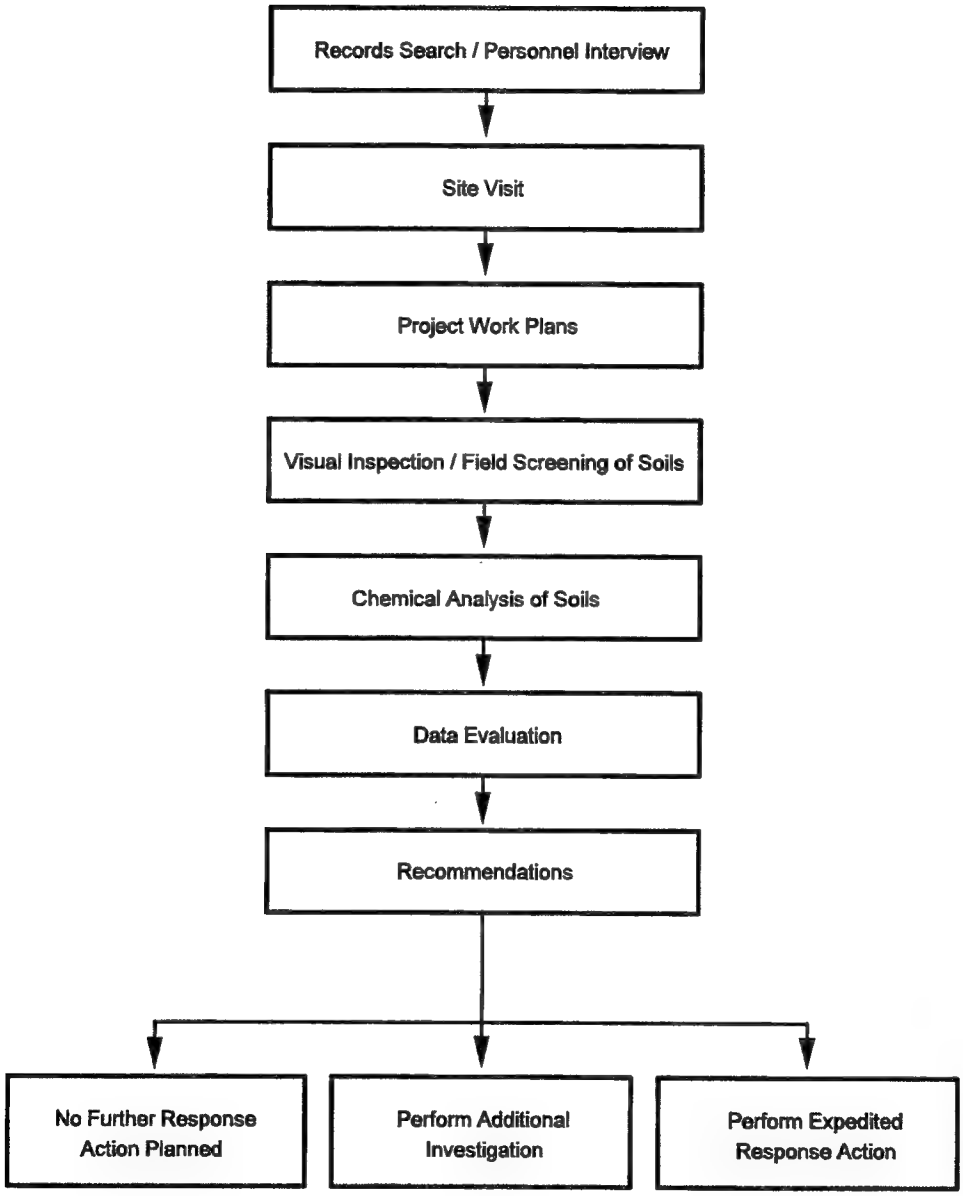


Figure 1-2. Flow Diagram Illustrating the PA/SI Process

clude the implementation of a time-critical or non-time-critical removal action (RA). Additional data could be collected through a remedial investigation, a Phase II environmental baseline study, or in conjunction with RA design. No further action recommendations (Category II NFRAP) can be made for AOCs if the results of the PA/SI indicate that no hazardous constituents are present in environmental media at concentrations that require response or remedial action to protect human health or the environment. These AOCs are referred to as "areas below action levels" (ABALs).

In evaluating the recommendations for each AOC in this PA/SI, consideration was given to the characteristics of the AOC, evidence of contaminant releases, the nature of the contaminants present, potential for contaminant migration pathways, and the potential for contaminant receptors. The five major factors considered during the PA/SI are summarized below.

AOC Characteristics

- Location of AOC;
- Type of AOC;
- Design features;
- Past operating practices; and
- General physical conditions.

Waste Characteristics

- Type of waste placed in the AOC;
- Migration and dispersal characteristics of the waste;
- Toxicological characteristics of the waste; and
- Physical and chemical characteristics of the waste.

Evidence of Release

- Prior inspection reports;
- Visual evidence (such as discolored soil);
- Screening data;
- Analytical results;
- Comparison with applicable or relevant and appropriate requirements (ARARs) (e.g., EPA Region III risk-based concentrations or State of Alaska DRO/GRO levels); and
- Comparison with background concentrations for inorganic constitutents.

Migration Pathways

- Topographic features;
- Climatic setting;
- Facility's geologic setting; and
- Facility's hydrogeologic setting.

Exposure Potential

- Future use of the AOC;
- Proximity to potentially affected population;
- Likelihood of migration to potential receptors; and
- Proximity to sensitive environments.

1.3 Site Inventory

As a result of the previous PAs, the literature search, the interviews with former facility personnel, and the initial site visit, 16 AOCs were identified for additional inspections during the SI phase of the investigation. Table 1-1 lists the AOCs addressed in this report, and their locations are shown in Figures 1-3 and 1-4.

Table 1-1
Summary of AOCs Evaluated for the Kalakaket Creek RRS PA/SI

AOC Name	Description	Wastes Potentially Released	Contaminants of Potential Concern
Antenna Day Tanks	Antennas were kept from icing by several large furnaces and blowers. Six day tanks supplied fuel to the furnaces. Stained soils were not observed.	Fuel from six day tanks	GRO, DRO
Vehicle Maintenance Garage	This building was used for vehicle storage and maintenance. Waste oils and other liquids may have been poured onto ground outside building. Stained soils were found outside the doorways.	Waste oils, fuels, and solvents	GRO, DRO, VOCs, SVOCs, metals
Paint Storage Building	This building was used for temporary storage of paints, thinners, and other small containers of chemicals. No stained soils were observed.	Paints, thinners, and chemicals	VOCs, SVOCs, metals, PCBs, pesticides
Equipment Building	This building housed large diesel generators used to power the station. Fuel was delivered through a buried pipeline from the diesel tanks. Stained soils were observed.	Diesel fuel, waste oil, and solvents	GRO, DRO, VOCs, PCBs, pesticides, metals
Equipment Building Transformers	Leaks or maintenance activities released insulating oils to the soil surrounding the transformer pad. PCB-contaminated soils were excavated in 1984. Stained soils were not found at this AOC.	Insulating oils containing PCBs	PCBs
Diesel Tanks and Fill Area	Two 3000-barrel aboveground storage tanks held fuel oils for the generation of heat and electricity. Soils in this AOC were stained.	Diesel fuel	GRO, DRO
Septic Tank Outfall	Effluent wastewater from the septic tank was released onto the ground on a steep hill slope. Waste liquids other than water may have been discharged. The outfall area was stained rust color.	Waste liquid chemicals	DRO, GRO, VOCs, SVOCs, PCBs, pesticides, metals
Gasoline Tank	This small aboveground gasoline tank was surrounded by concrete walls and gravel. The tank was used to power the fire pump. No areas of stained soil were found in this AOC.	Fuel	GRO, DRO
Drum Storage Area #1	The "barrel storage dock" is located 100 feet north of the VM. Drums have been removed and the area is covered with gravel, debris, and alders. An area of stained soil was noted north of this AOC, thus increasing the area of investigation.	Fuel, oil, solvents, and pesticides	GRO, DRO, VOCs, SVOCs, PCBs, pesticides, metals
Drum Storage Area #2	This area of stained soil is located north of the eastern edge of the runway. Vegetation has been disturbed. Although not confirmed, this area has been identified as the site of the refuse landfill. Drums have been removed.	Fuel, oil, solvents, pesticides, and solid waste	GRO, DRO, VOCs, SVOCs, PCBs, pesticides, metals
Drum Storage Area #3	This area is located on the southeastern portion of the runway. The drums and PCB-contaminated soils have been removed. Alders and willows vegetate the area. Stained soils were observed.	Fuel, oil, solvents, and pesticides	GRO, DRO, VOCs, SVOCs, PCBs, pesticides, metals

Table 1-1
(Continued)

AOC Name	Description	Wastes Potentially Released	Contaminants of Potential Concern
Temporary Garage	The temporary garage was used for storage of vehicles and possibly refueling activities. Some light maintenance may have also occurred. No stained soils were noticed.	Fuel	GRO, DRO, metals
Temporary Diesel Tanks	This 1000-barrel aboveground storage tank received diesel from aircrafts. Fuel was then transferred to the main tanks by trucks. Stained soils were not observed.	Diesel fuel	GRO, DRO
Water Pump House	Two diesel-powered pumps were used to fill the water storage tanks. Fuel oil drums were stored at the southeast corner of the building.	Diesel fuel	GRO, DRO
Remote Drum Cache	Empty and partially full drums were rolled down a hill into a ravine north of the station. Drums contained lube oil, mogas, antifreeze, combat gas, and roofing tar. Some drums have leaked and stained surface soils.	Lube oil, mogas, antifreeze, combat gas, and roofing tar	GRO, DRO, VOCs, SVOCs, PCBs, pesticides, metals
Landfill	Facility refuse landfill may be located north of the northeast end of the runway.	All materials used at the facility	GRO, DRO, VOCs, SVOCs, PCBs, pesticides, metals

Abbreviations:

DRO = Diesel Range Organics.
GRO = Gasoline Range Organics.
PCBs = Polychlorinated Biphenyls.
SVOCs = Semivolatile Organic Compounds.
VOCs = Volatile Organic Compounds.

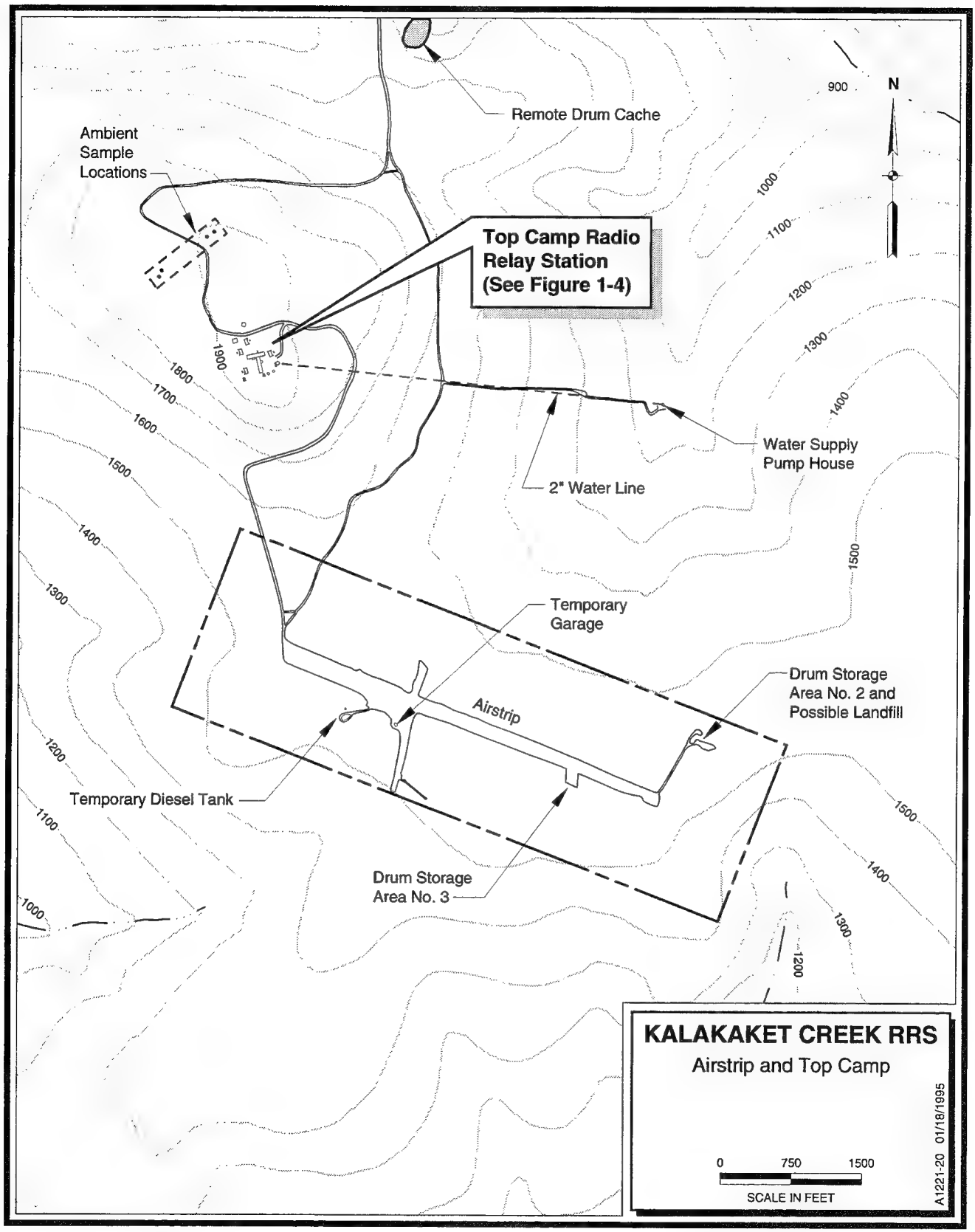


Figure 1-3. Areas of Concern, Runway Area, Kalakaket Creek RRS, Alaska

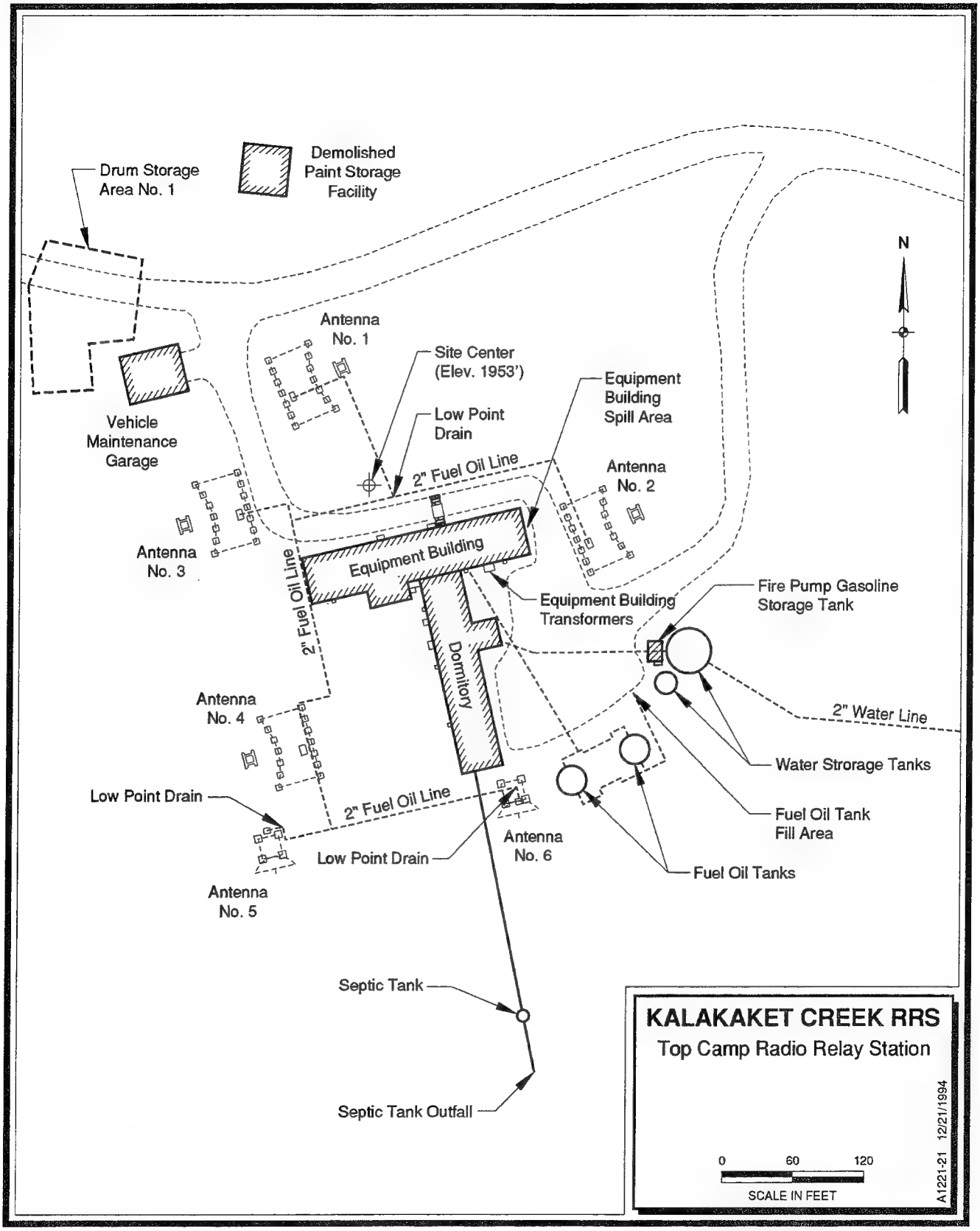


Figure 1-4. Areas of Concern, Top Camp, Kalakaket Creek RRS, Alaska

Section 2
BACKGROUND

The Kalakaket Creek RRS was activated in 1957 as 1 of 31 original White Alice Communication System sites. The mission of these sites was to enable the Aircraft Control and Warning system sites to link with the Distant Early Warning system and form a cohesive network relaying information back to Elmendorf Air Force Base (AFB) and Eielson AFB.

Kalakaket Creek RRS was a combined tropospheric scatter/TD-2 microwave station. It provided links to North River RRS and Bear Creek RRS by using tropospheric scatter billboard antennas, and to Tatalina RRS with a pair of 30-ft dish antennas. A microwave link was added to Campion AFS and Galena AFS. Alaska Telephone Switching Station capabilities were also added to Kalakaket Creek RRS from 1959 through the mid-1960s.

With the development and implementation of satellite communication systems, the 31 stations (including Kalakaket Creek RRS) were becoming obsolete during the late-1960s. By 1973, Kalakaket Creek RRS was abandoned because of the launch and operation of the first viable communications satellite, SATCOM. The facility has remained abandoned and uninhabited since 1973.

2.1 Past and Current Land Uses

Prior to 1957, the land in the vicinity of Kalakaket Creek RRS was used for hunting and recreational purposes. During the 16 years of operation of the facility by the USAF as a communications site, the land was used to support the activities necessary to fulfill the mission of Kalakaket Creek RRS. The RRS consisted of a vehicle maintenance garage, a vehicle garage, a paint storage building, an equipment building, several diesel and gasoline storage tanks and conveyance systems, several drum storage areas, a septic system, a drinking water well and pumphouse, roads, parking areas, refuse landfill, and a runway.

The runway and most of the structures associated with Kalakaket Creek RRS are currently intact. The surrounding land returned to its original use in 1973, when the USAF abandoned the facility. Today, hunting and recreational activities near the facility are few and infrequent. The facility is within the trapping subsistence area of Galena residents. At least one cabin near the runway is used in the winter for temporary shelter by trappers setting trap lines in the river valleys for fur-bearing animals (USAF, 1994e).

Small planes often use the runway during fall and winter hunts. Bear and moose commonly forage in the creek drainages; however, caribou herds are not known to frequent the facility area. Most big-game animals taken for subsistence are hunted within 20 miles of Galena, a use pattern that excludes Kalakaket Creek RRS from the area of most intense hunting (USAF, 1994e).

2.2 Wastes Generated

Information on the types of wastes generated and waste management practices was gathered through review of past PAs, personnel interviews, and a records search. Once identified, each potential contaminant source within each AOC was considered for site inspection activities. A summary of the potential contaminant source types, associated wastes, and contaminants of potential concern is presented in Table 2-1.

Table 2-1
Summary of Potential Contaminant Source Types, Wastes Generated, and Contaminants of Potential Concern

Potential Source Types	Wastes Generated	Contaminants of Potential Concern
Paint storage areas	Paint and spent solvents	Metals, VOCs, and SVOCs
Drum storage areas	Fuels, solvents, pesticides, transformer oil, and scrap metal	Petroleum hydrocarbons, SVOCs, VOCs, metals, pesticides, and PCBs
Transformers	Transformer oil and spent solvents	PCBs and VOCs
Power generation plants	Fuel oil, lubricating oil, spent solvents, and transformer oil	Petroleum hydrocarbons, VOCs, metals, and PCBs
Underground and aboveground POL storage tanks and transfer lines	Fuels and waste oil	Petroleum hydrocarbons and metals
Vehicle storage and maintenance shops	Fuels, waste oil, and spent solvents	Petroleum hydrocarbons, SVOCs, VOCs, and metals
Water supply pump house	Fuels and lubricants	Petroleum hydrocarbons
Septic system and outfall	Sewage effluent	Petroleum hydrocarbons, SVOCs, VOCs, metals, pesticides, and PCBs
Landfills	Refuse, construction rubble, and chemicals	Metals, SVOCs, VOCs, PCBs, and pesticides

Abbreviations:

VOCs = Volatile organic compounds.
SVOCs = Semivolatile organic compounds.
PCBs = Polychlorinated biphenyls.
POL = Petroleum, oils, and lubricants.

2.3 Previous Investigations

The 5099th Civil Engineering Operations Squadron (CEOS) from Elmendorf AFB, Alaska, performed site cleanup activities from 28 September 1984 to 9 November 1984 (USAF, 1989). Nonhazardous materials found at Kalakaket Creek RRS were buried in three pits: two on the north side of the east end of the runway and a third on the north side of the hill going up to the top camp portion of the facility. Containers of liquids found at the facility were tested for polychlorinated biphenyls (PCBs). Soils where drums were found on the north and south sides of the east end of the runway also were tested for PCBs. Heavily contaminated soil was removed until the detected PCB concentrations were less than 50 parts per million (ppm). Drums containing contaminated soil, oils, and PCBs were flown back to Elmendorf AFB for proper disposal. These cleanup operations are documented in a "Finding of No Significant Contamination" and "PCB Clearance Certificate," signed and dated 12 September 1985 (Appendix A).

A PA of the Kalakaket Creek RRS was conducted in January 1988. Findings of the assessment can be found in a report entitled *Installation Restoration Program Preliminary Assessment, Kalakaket Creek Radio Relay Station, Alaska* (USAF, 1989). The PA identified the major operations at Kalakaket Creek RRS that used and disposed of hazardous materials/ hazardous wastes. During the 1989 site visit, no evidence of contamination at the facility was observed. The recommendations of the PA were twofold: 1) to locate a suspected landfill, determine the nature of its waste, and remove any hazardous waste and contaminated soil; and 2) to remove and dispose of asbestos from buildings at the facility. The recommendation to locate and investigate the landfill may have been the impetus to assign the WIMS-ES site identification of LF002 to the landfill. This was done on the suspicion that a landfill existed and was not based on the results of any site inspection or literature search.

A second PA of the Kalakaket Creek RRS was conducted in January 1993; results were presented in a report entitled *Preliminary Assessment, Kalakaket Creek* (USAF, 1994e). Site reconnaissance was not performed for the PA, but review of available information found no evidence of any major fuel or hazardous substance releases at the facility. The recommendations of this PA were to verify the presence or absence of constituents associated with typical source areas and to remediate asbestos contained in buildings at the facility.

Section 3
ENVIRONMENTAL SETTING

Kalakaket Creek RRS is located in west-central Alaska approximately 275 miles west of Fairbanks, as shown in Figure 1-1. It is about 22 miles south of Galena, Alaska, within Sections 22 and 27, Township 12 South, Range 10 East (Kateel River Meridian). The topographic features at the RRS are shown in Figure 3-1. The main portion of the base facility—called top camp—was constructed on top of a local topographic high at an elevation of approximately 1950 ft above mean sea level (MSL). It is reported that blasting and excavation were required to level the approximately 17-acre site prior to construction of the facilities (D. Patrick, personal communication, 1994). Top camp is connected to the lower runway area by a gravel road that is approximately 1.2 miles long. The runway area encompasses approximately 285 acres of land at an elevation of 1600 ft MSL. Additional property used by the Air Force at the site includes a waterline right-of-way and water supply pump house located approximately 1 mile east of top camp.

3.1 Climate

The climate of Kalakaket Creek RRS is subarctic. Although site-specific climatological data were not available, information from nearby Galena was obtained for the period from 1949 through 1984. Because the site is approximately 1900 ft higher in elevation than Galena, it is likely that yearly precipitation amounts are greater and winter temperatures are lower than those on record at Galena Airport.

Temperatures in the Galena area vary dramatically, from a low of -64°F to a high of 92°F. The average maximum and average minimum temperatures are 32.1°F and 15.9°F, respectively. The average annual temperature is 24°F (USAF, 1989).

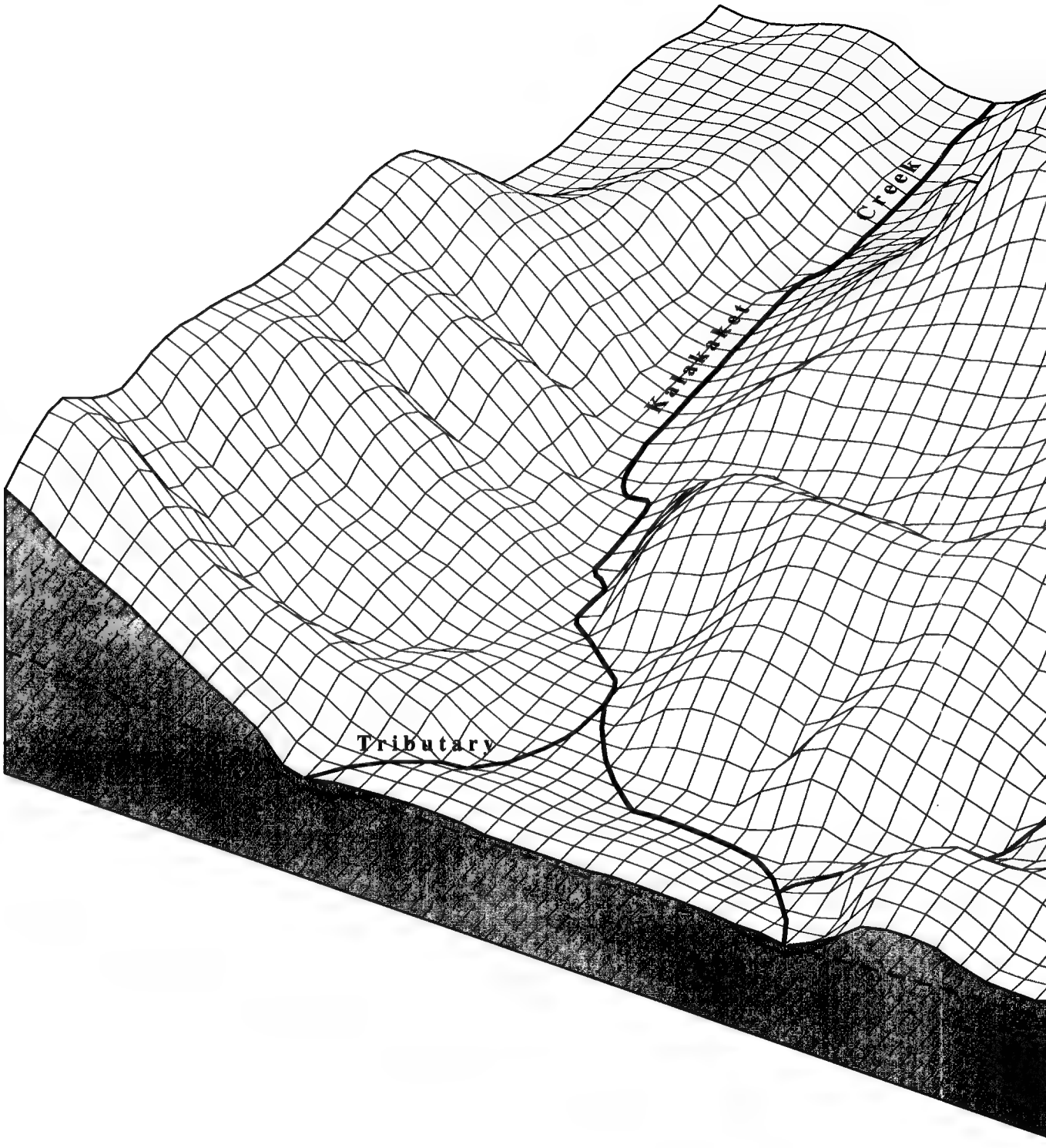
Annual mean precipitation at Galena is 12.74 in. Maximum rainfall intensity, based on a 10-year, 24-hour rainfall, is 2.5 in. The average annual accumulation of snow is 60.2 in. with a maximum monthly total of 42.0 in. The annual potential evapotranspiration rate is 17.83 in.; therefore, the net annual precipitation is about -5 in., depending on snow density and snow/water equivalent (USAF, 1989).

The prevailing wind direction is from the north. The average wind speed at Galena Airport is 5.4 knots.

3.2 Soils

At Kalakaket Creek RRS, a thin veneer of soil has developed over the greywacke-quartzite bedrock. Two test pits were excavated at the RRS top camp area prior to construction of the site in 1956. Test pit records constructed by the U.S. Army Corps of Engineers show that the upper 2 to 4 ft is composed of cobbles, boulders, gravel, and voids, with little soil present. Below this unit to a depth of 7 ft is a unit composed of gravel, cobbles, boulders, and approximately 30 percent silt. The bedrock encountered at 7 ft below ground level is composed of dense and massive greenish-grey greywacke and quartzite. According to U.S. Army Corps of Engineers test pit logs the bedrock was slightly weathered to a depth of only 3 in. from the solid rock (USAF, 1956).

According to the U.S. Soil Conservation Service, the soils in the general vicinity of Kalakaket Creek RRS are of the Pergelic Cryumbrepts-Histic Pergelic Cryaquepts, and are associated with very gravelly, hilly to steep terrain. The soils consist of silt loam, sandy loam, and gravelly loam, with organic soil coverings. The permeability of the surface soil is character-


To
Kalakaket
Creek
Tributary

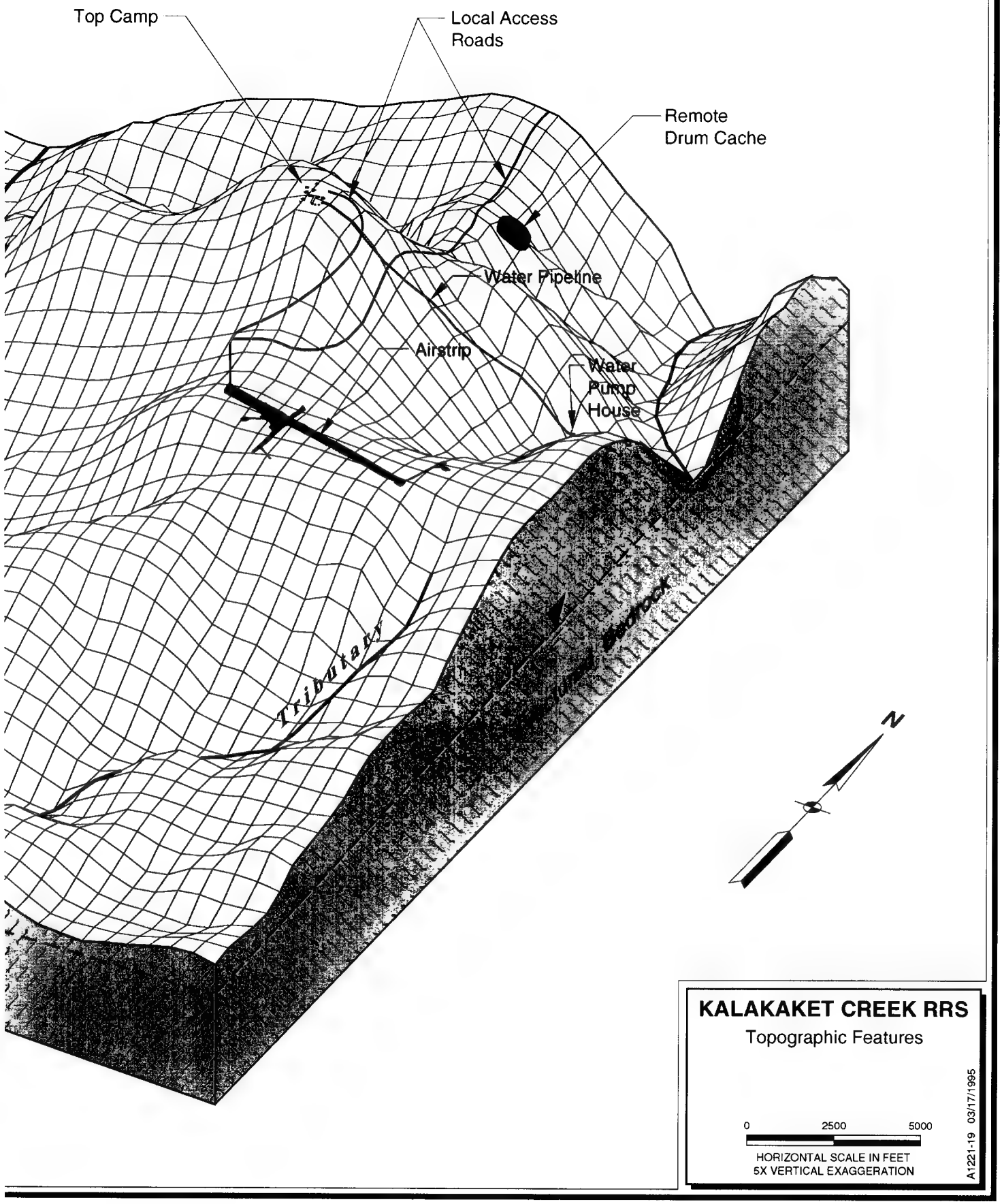


Figure 3-1. Topographic Features of Kalakaket Creek RRS, Alaska

ized as moderate to rapid (4.4×10^{-4} to 1.4×10^{2} cm/sec) (USAF, 1989).

3.3 Geology

The surface material at the site is composed of metamorphosed igneous rocks. These rocks are underlain by a metamorphic complex of late Precambrian or early Paleozoic age. Volcanic rock (basalt and andesite) of unknown age underlies the metamorphic complex. These volcanic rocks vary from relatively unaltered to highly folded and faulted, depending on location. The bedrock exposed during construction of the RRS and during the excavation of the test pits is composed of slightly weathered greywacke and quartzite.

Throughout the area surrounding Kalakaket Creek RRS, reverse faults and strike-slip faults with large displacement are present. The faults appear to be related to folding and run both along and across the trend of the fold axes. On the basis of the site visit and site inspection, the local bedrock does not appear to be extensively fractured. Only minor fracturing was observed by the U.S. Army Corps of Engineers while excavating the test pits at top camp.

3.4 Surface Water

Kalakaket Creek RRS is located on a topographically high area approximately 3900 ft east of Kalakaket Creek (Figure 3-1), a tributary of Kala Creek. Surface runoff from the northern, western, and southern portions of the facility flows into two small tributaries to Kalakaket Creek. Surface runoff from the eastern and southeastern portions of the facility drains into a small, unnamed creek that flows directly into Kala Creek and eventually into the Yukon River more than 15 air miles north of the facility. The surface water drainages are characterized by a flat gradient, a meandering course, and spring flooding. The Kalakaket Creek RRS lies outside any flood plains owing to its high elevation. No prominent surface water pathways, streams, or creeks were observed in the vicinity of top camp. Some evidence of minor erosion was observed on the gravel roadway leading to the facility. This may indicate that surface water can be temporarily channeled by the roadway. However, since no maintenance has been performed on this road since the facility was abandoned in 1973, the inferred erosion rate is extremely minor.

The only known surface water use in the area is related to fish and wildlife management. Surface water is not believed to be a significant pathway for the transfer of contaminants from the RRS facility. There are no significant surface water bodies within ¾ mile of the facility. The amount of surface drainage originating from the facility that flows into the local creeks is believed to be a very small percentage of the total surface water discharge of the watershed (USAF, 1994e).

3.5 Groundwater

Groundwater is also potentially an important migration pathway for contaminants off site. Although specific groundwater data are not available for the vicinity of Kalakaket Creek RRS, some inferences can be made on the basis of regional geology and topography. It is unlikely that shallow groundwater exists beneath the facility. The soils are very shallow and the local bedrock does not appear to be extensively fractured. No groundwater was observed when test pits were excavated to bedrock at top camp, nor were springs or seeps observed along the steep slopes surrounding the facility. If groundwater is present beneath the facility, it is restricted to fractures and faults that provide conduits for water movement through the bedrock. Shallow groundwater is present in the alluvium along the creeks. A shallow horizontal "well" almost 1 mile east of the facility was dug into the alluvial aquifer of the unnamed tributary. This shallow well supplied Kalakaket Creek RRS with its potable water. No other wells are known to exist in the vicinity of Kalakaket Creek.

Section 4
INVESTIGATION ACTIVITIES, RESULTS, AND RECOMMENDATIONS

Activities associated with the PA/SI conducted at Kalakaket Creek RRS were performed during the period from July to December 1994. These activities and the results of the investigations are summarized in the following sections. Conclusions and recommendations for each AOC are also presented.

4.1 Summary of Activities

The purpose of the PA/SI was to identify and evaluate AOCs at Kalakaket Creek RRS that may pose a threat to human health and the environment. To achieve this goal, data were gathered and evaluated during a literature search, personnel interviews, an initial site inspection, and a field investigation.

4.1.1 Records Search

Previous PAs conducted at Kalakaket Creek RRS (USAF, 1989, 1994e) identified several AOCs and presented significant background data on the installation. Additional data were obtained by reviewing case files at the Bureau of Land Management offices in Anchorage and Fairbanks, Alaska. Data from Case File FO16423 and Public Land Order 1740 detailed the history of property transfer and ownership. Site plans, as-built drawings, and survey data were located at the U.S. Army Corps of Engineers Map Reproduction Section and at the 611th Civil Engineer Squadron (CES) Drafting Department at Elmendorf AFB. The base historian at Elmendorf AFB also provided historical information for Kalakaket Creek RRS and the White Alice Communications System. Topographic maps and high-altitude aerial photographs were obtained from the U.S. Geological Survey.

4.1.2 Personnel Interviews

Before the site inspection began, two interviews were conducted with current and former Air Force personnel to identify past activities, wastes generated, and areas of potential concern at the facility. Danny Patrick worked at Kalakaket Creek RRS for three years during the late 1960s as a civilian employee responsible for maintenance and daily operation of all facilities except the communication equipment. Mr. Patrick provided information concerning the management of waste, the types of waste generated, and the methods of disposal. Information from his interview was used to locate several AOCs, including the Antenna Day Tanks, Gasoline Tank, and the Remote Drum Cache.

John Donnelly, a current 611 CES civilian employee, was present during the 1984 site cleanup conducted by the Air Force. He provided valuable information concerning the appearance and status of the site prior to the cleanup efforts. The locations of Drum Storage Area (DSA) No. 2 and DSA No. 3 were identified from his descriptions of the area.

4.1.3 Site Inspection

An initial site inspection was conducted on 1 August 1994. All potential AOCs were located with the exception of the Drum Cache. Photographs of the AOCs were taken to help prepare the sampling plans. Valuable information concerning general site conditions was gathered and used to plan the logistics of the field investigation.

4.1.4 Field Investigation

The field investigation was conducted in September 1994. Fourteen AOCs were investigated using a phased field screening and sampling approach. Two AOCs, the Remote Drum Cache and the Landfill, were visually inspected but were not sampled (see Sections 4.2.15 and 4.2.16). The SI focused on determining the presence or absence of contaminants in the surface soils at the AOCs as

detailed in the *Addendum to the Work Plan, Galena Airport and Kalakaket Creek Radio Relay Station, Alaska* (USAF, 1994b). Sampling procedures are outlined in the *Addendum to the Sampling and Analysis Plan, Galena Airport and Kalakaket Creek Radio Relay Station, Alaska* (USAF, 1994a). Field activities conducted at each AOC are described within Section 4.2.

4.1.5 Interpretation of Analytical Data

Screening Criteria—To facilitate the discussion and presentation of data, the analytical results were compared with various evaluation criteria, including State of Alaska and EPA cleanup levels, EPA Region III risk-based criteria (RBCs), and statistically calculated upper tolerance limits (UTLs) for background inorganic constituent concentrations. Analytes whose concentrations did not exceed these evaluation criteria are not included in the data tables found in Section 4.2 of this report. However, complete analytical data tables are presented in Appendix B. This preliminary screening was performed to aid in data presentation and to narrow the list of analytes to be discussed at each AOC. These evaluation criteria should not be used to assign risk or cleanup levels to any AOC.

The State of Alaska has issued a number of guidance documents and memoranda that provide cleanup levels for various environmental media. Since these guidance documents are not promulgated, they are not enforceable standards, but they do provide relevant and appropriate information. These guidance documents include the "Guidance for Using Alaska Cleanup Matrix for Non-UST Soil" (State of Alaska, 1991a) and "Storage, Remediation, and Disposal of Non-UST Petroleum Contaminated Soils" (State of Alaska, 1991b). Table 4-1 is adopted from these two documents. Application of this matrix guidance to contaminated soils at Kalakaket Creek RRS indicates that a Level D criteria should apply to all AOCs except the Remote Drum Cache and the Water Pump House, which fall under Level C.

EPA Region III RBCs provide media- and chemical-specific health-based or risk-based numerical values, which establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the environment (soil, sediment, groundwater, surface water, or air). Currently both EPA Region X and the Alaska Department of Environmental Conservation have adopted the use of these values.

A screening criterion of 1000 µg/kg (1ppm) was used for the reporting of all PCBs. This value is a guideline concentration given by the EPA for PCBs in soils at Superfund sites in residential areas; these guideline concentrations do not imply that action must be taken (EPA, 1990). The use of the residential criterion is for the reporting of data only. The EPA guidance states: "In remote areas or areas where land use is industrial, a more appropriate concentration at which to start analysis may be 10 to 25 ppm (10 to 25 mg/kg), since direct exposure is less frequent than for residential land use...".

To differentiate between naturally occurring concentrations of inorganic constituents in the soil and those resulting from waste releases, the analytical results for metals were compared with statistically-derived background concentrations. Analytical results for metals from four ambient sample locations (Figure 1-3) were used to calculate UTLs for each analyte. These UTLs were then used to screen AOC metals results to identify data that are not significantly different from background. The UTLs calculated for this investigation are summarized in Table 4-2; the methodology for calculating the UTLs is outlined in Appendix C.

GRO and DRO—The quantitation of the gasoline range organics (GRO) is based on the total integration of all the peaks eluting in the retention time window defined by the beginning of the C6 (i.e., a hydrocarbon with six carbons) peak to the beginning of the C10 peak. This response is calculated against a mixed gasoline standard and is

Table 4-1
Guidance for Using Alaska Cleanup Matrix for Non-UST Soil (Applied to Kalakaket Creek RRS)

I. Matrix Score Sheet		Kalakaket Creek RRS Score
1. Depth to Subsurface Water		1-8
< 5 feet	(10)	
5 - 15 feet	(8)	1 for all AOCs except the Water Supply Pump House (8) and the Remote Drum Cache (8).
15 - 25 feet	(6)	
25 - 50 feet	(4)	
> 50 feet	(1)	
2. Mean Annual Precipitation		1
> 40 inches	(10)	
25 - 40 inches	(5)	Rainfall at Kalakaket Creek RRS is approximately 13 in./year.
15 - 25 inches	(3)	
< 15 inches	(1)	
3. Soil Type (Unified Soil Classification)		8
Clean, coarse-grained soils	(10)	
Coarse-grained soils with fines	(8)	Soils are composed of gravel and silt.
Fine-grained soils (low OC)	(3)	
Fine-grained soils (high OC)	(1)	
4. Potential Receptors		4
Public Well within 1000 feet, or	(15)	
Private Well(s) within 500 feet	(12)	There are no known groundwater supply wells within 20 miles of the facility.
Municipal/private well within 1/2 mi.	(8)	
No known well within 1/2 mile	(6)	
No known well within 1 mile	(4)	
Non-potable groundwater	(1)	
5. Volume of Contaminated Soil		2
> 500 cubic yards	(10)	
100 - 500 cubic yards	(8)	Soil contamination is limited in extent and is estimated at less than 25 cubic yards for each AOC.
25 - 100 cubic yards	(5)	
>De Minimis - 25 cubic yards	(2)	
De Minimis	(0)	

AOC SCORE SHEET	TOTALS
Water Supply Pump House	23
Remote Drum Cache	23
All other AOCs	16

		Cleanup Level in mg/kg			
		Diesel	Gasoline/Unknown		
Matrix Score		Diesel Range Petroleum Hydrocarbons	Gasoline Range Petroleum Hydrocarbon	Benzene	BTEX
Level A	>40	100	50	0.1	10
Level B	27-40	200	100	0.5	15
Level C	21-26	1000	500	0.5	50
Level D	<20	2000	1000	0.5	100

Table 4-2
Upper Tolerance Limits for Metals in Soils at Kalakaket Creek RRS

Analyte	Upper Tolerance Limit (mg/kg)
Aluminum	24,200
Antimony	30.3
Arsenic	96.6
Barium	361
Beryllium	1.08
Cadmium	1.55
Calcium	21,500
Chromium	118
Cobalt	79.0
Copper	211
Iron	88,400
Lead	39.4
Magnesium	26,100
Manganese	5420
Molybdenum	5.86
Nickel	96.3
Potassium	1740
Selenium	20.8
Silver	1.39
Sodium	264
Thallium	23.1
Vanadium	149
Zinc	103

reported as GRO. As per Method AK101, the analyst may further interpret the chromatogram using pattern or peak recognition to qualitatively identify, and if possible quantitate, the fuel(s) eluting in the C6 to C10 retention time window.

The quantitation of the diesel range organics (DRO) is based on the total integration of all the peaks eluting in the retention time window defined by the beginning of C10 peak to the beginning of the C25 peak. This response is calculated against a mixed diesel standard and is reported as DRO. As per Method AK102, the analyst may further interpret the chromatogram using pattern or peak recognition to qualitatively identify, and if possible quantitate, the fuel(s) eluting in the C10 to C25 retention time window.

Constituents that elute within the gasoline or diesel range do not necessarily indicate the presence of gasoline or diesel, respectively. Data that do not appear to match a typical gasoline or diesel standard are indicated in the data tables, and the source of the instrument response, if known, is noted. All unflagged GRO and DRO data appear to match their respective standard.

4.1.6 Determination of Relative Risk Factors

Data collected during the PA/SI is used to evaluate each AOC to determine whether past waste handling practices have resulted in site conditions that pose a threat to human health or the environment. To make this determination, consideration was given to the characteristics of the AOC, the concentration of contaminants present in the soils, the potential for contaminant migration, and the potential for human exposure to the contamination. The Department of Defense (DoD) has recently adopted a framework for evaluating relative human risk of each media at an AOC by assigning a high, medium, or low category to the AOC on the basis of the evaluation of three factors: contaminant hazard factor (CHF), migration pathway factor (MPF), and receptor factor (RF) (DoD, 1994). Human health risks are considered first for each media. Ecological risk are then assessed separately for those areas that fall into the "low" or "medium" category for human health.

The CHF can have a rating of significant, moderate, or minimal, and is calculated by summing the ratios of maximum contaminant concentration to a health-based standard. CHFs were not calculated during this investigation. However, as described in Section 4.1.5, the analytical results were screened against RBCs, State of Alaska or EPA cleanup standards, and inorganic background UTLs to provide a relative indication of the contaminants present at an AOC.

MPF is dependent on whether there is any evidence for contaminant migration toward a point of exposure. Thus, a rating of evident, potential, or confined can be assigned. The MPF for groundwater and surface water is determined to be "confined," since the contaminants in the soils have very little potential to migrate to either media. Factors that contribute to this classification include the relatively limited rainfall in the area, the depth to groundwater, and the distance to surface water bodies. The MPF for soils is considered to be "potential" because, even though there are no workers, residents, schools, or daycare in the area of contamination, the facility is not restricted and the potential exists for exposure.

Potential for receptors to have access to contaminated media determines whether the RF receives a rating of identified, potential, or limited. Because of the remoteness of this facility, the RF for soils, surface water, and groundwater is considered to be limited. However, if the facility is returned to the Bureau of Land Management, there may be a potential for future exposure to contaminated soils.

All AOCs at Kalakaket Creek RRS will most likely be classified as low to moderate relative risk regardless of the calculated CHF. This is due to the lack of human receptors and the limited migration pathways. Table 4-3 summarizes the MPF and RF for all AOCs.

Table 4-3
Summary of Soil Relative Risk Factors for AOCs Evaluated at Kalakaket Creek RRS

AOC Name	Migration Pathway Factor (MPF)	Receptor Factor (RF)
Antenna Day Tanks	Potential	Limited
Vehicle Maintenance Garage	Potential	Limited
Paint Storage Building	Confined	Limited
Equipment Building	Potential	Limited
Equipment Building Transformers	Potential	Limited
Diesel Tanks and Fill Area	Confined	Limited
Septic Tank Outfall	Potential	Limited
Gasoline Tank	Confined	Limited
Drum Storage Area #1	Potential	Limited
Drum Storage Area #2	Potential	Limited
Drum Storage Area #3	Potential	Limited
Temporary Garage	Confined	Limited
Temporary Diesel Tanks	Confined	Limited
Water Pump House	Potential	Limited
Remote Drum Cache	Potential	Limited
Landfill	Potential	Limited

4.2 Results of Field Investigation

The following sections provide descriptions and background information for all AOCs currently under investigation at Kalakaket Creek RRS. The investigation results, conclusions, and recommendations also are presented.

4.2.1 Antenna Day Tanks

Each tropospheric and microwave antenna was originally constructed with several large furnaces and blowers to keep the antennas from icing in the winter. A day tank with a capacity of 1000 to 1500 gal. was installed below each antenna to provide fuel for the furnaces. A total of six day tanks were installed at the site. Interviews with persons involved with the operation of the facility suggest that these furnaces were not used during the operation of the facility (D. Patrick, personal communication, August 1994). The tanks were installed above ground on concrete saddles and were connected to the large fuel storage tanks by a 2-in. pipe that was buried at least 18 in. below grade. During the August 1994 site visit, some surface soil staining immediately beneath the tank valves was observed. As-built drawings indicated that there are two low-point drains present in the fuel lines. During the sampling event, three low-point drains were located and were found to contain residual fuel. It also appears that the buried fuel lines have been cut and partially removed. All tanks are currently empty, and some have been moved from their initial positions on the saddles.

Investigation Activities

All tanks and lines associated with this site were examined to determine if they still contain fuel. Surface soil samples were collected from each valve pit and low-point drain to assess the effects of any past leaks and spills. Each of these samples was screened in the field using an infrared (IR) petroleum hydrocarbon analyzer for both total petroleum hydrocarbons (TPH) and aromatic hydrocarbons (AH). Figure 4-1 shows the sample locations; Figure 4-2 shows a photograph of one of the low point drains.

On the basis of the results of the field screening, the two samples with the highest TPH results were submitted for laboratory confirmation analysis. Since petroleum fuels are the only expected contaminants at these locations, the samples were analyzed for GRO and DRO by Alaska state methods AK101 and AK102, respectively. Figure 4-1 shows the confirmation sample locations.

Results

Table 4-4 summarizes the results of the field screening and laboratory confirmation analyses for surface soil samples collected from near the antenna day tanks. Petroleum hydrocarbons were detected in seven of the eight surface soil samples analyzed in the field using the IR screening method. The sample collected at location AD-FS-05, the low point drain beneath the easternmost microwave antenna, contained the highest concentration of TPH (21,000 mg/kg). At this sample location, a strong petroleum odor and soil staining to a depth of approximately 3 in. below the surface were observed. The staining was not visible at the surface and therefore areal extent is unknown. The sample collected at location AD-FS-01, the valve pit associated with the day tank for tropospheric antenna No. 1, contained 4050 mg/kg TPH. A moderate petroleum odor was noted at this location, but it is uncertain whether the odor originated from the soil or the nearby day tank. Concentrations of TPH ranged from 13 to 1620 mg/kg in the five remaining samples where TPH was detected, although no staining or odor was noted during collection of these samples. TPH was not detected in the sample from location AD-FS-03.

Surface soil samples were recollected for laboratory confirmation analysis at locations AD-FS-01 and -05. Samples from both locations contained DRO, but only the sample from AD-FS-

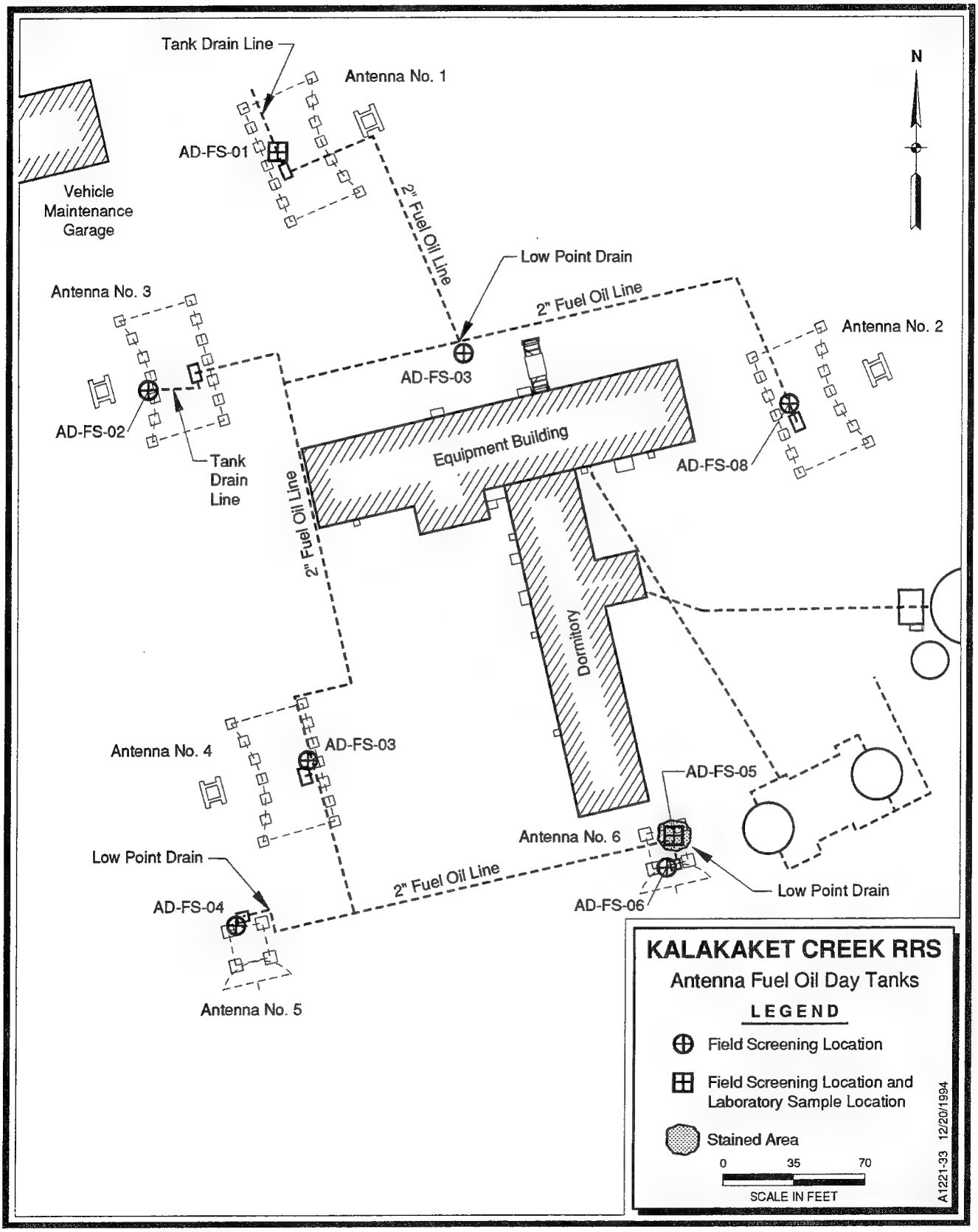


Figure 4-1. Sample Locations at the Antenna Day Tanks AOC (Stained Area Symbol Is Not Indicative of Scale)

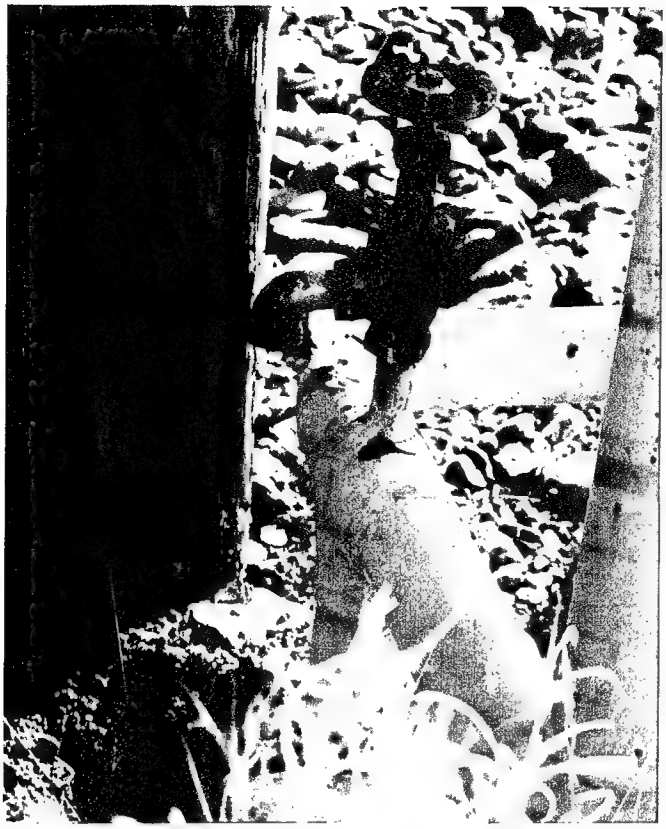


Figure 4-2. Sample Location AD-FS-05
One of the Low Point Drains at the Antenna Day Tanks AOC

Table 4-4
Field Screening and Analytical Data for the Antenna Day Tanks AOC

Location ID	AK101	AK102	Field IR Analysis	
	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	AH mg/kg	TPH mg/kg
AD-FS-01	ND (1)	120 (4)	244	4050
AD-FS-02	NA	NA	19.5	1620
AD-FS-03	NA	NA	29.6	936
AD-FS-04	NA	NA	ND	ND
AD-FS-05	31[b] (1)	8400 (200)	758	21000
AD-FS-06	NA	NA	4.96	74.2
AD-FS-07	NA	NA	19	1310
AD-FS-08	NA	NA	0.99	12.9

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
[b] Chromatogram indicates the presence of a weathered diesel within the gasoline range.
NA = Not analyzed.
ND = Not detected.
( ) = Sample quantitation limit.

05 exceeded the screening criterion of 2000 mg/kg (State of Alaska cleanup level), with 8400 mg/kg DRO. Sample AD-FS-06, collected approximately 15 ft down slope from AD-FS-05, did not contain significant TPH (74.2 mg/kg), indicating that the contamination is confined to the area immediately below the drain. GRO were detected in one of the samples at 31 mg/kg. The chromatogram (instrument response) indicated that the major portion of the GRO are due to the presence of lighter components in a weathered diesel.

Conclusions

The field screening and laboratory analyses indicate that handling of fuels in association with operation of the antenna day tanks resulted in isolated releases. The contaminants that are present are predominantly DRO. Only one sample, AD-FS-05, collected below a low point drain in the fuel line, contained concentrations of DRO that exceeded the State of Alaska cleanup standards for Level D sites. Inspection of the low point drains showed that some the 2-in. petroleum, oils, and lubricants (POL) lines still contain fuel, which may be a source of future releases. All tanks were inspected and determined to be empty of all liquids.

Recommendations

To prevent the possible future release of hydrocarbons, the fuel lines should be drained of all remaining fuel. If all lines are full, a maximum of 200 gal. of fuel would be present. Field sampling demonstrated that soil contamination is isolated in extent. Because shallow groundwater does not exist below the AOC, the AOC poses a minimal threat to groundwater. Because of the remoteness of this area and the lack of human receptors, this site should be recommended for NFRAP status following the removal of any remaining fuel in the POL lines. The limited surface soil contamination from fuel oil should be left in place and allowed to degrade naturally.

4.2.2 Vehicle Maintenance Garage

A 2000-ft^2 garage, located in the northern portion of top camp, was used for vehicle storage and maintenance. A grader and a bulldozer remain in the garage, and oil staining is present on the floor. There appear to be no floor drains in the concrete floor of the facility; however, waste oils and other liquids may have been poured onto the ground in the areas around the doors of the facility. Soil staining was observed next to the building by the front garage door. A gasoline-fired furnace that is located in the southwest corner of the building was supplied with fuel from an underground storage tank (UST) located on the south side of the building. The flue for the furnace is also located outside on the south side of the building. Vegetation is sparse to absent in the immediate vicinity of the facility.

Investigation Activities

Figure 4-3 illustrates the locations of field screening and laboratory confirmation samples. Surface soil samples for field screening were collected from eight locations around the building. Several of the samples were collected in areas of probable contamination, such as doorways and stained areas. The largest of these stained areas is less then 9 ft^2. Each of these samples were screened for TPH and AH using the field IR analyzer.

Four locations were resampled for laboratory confirmation analysis. Three of the four samples were collected from areas with high concentrations of TPH; the fourth sample submitted for confirmation had very low concentrations of TPH. Since the use of solvents, waste oils, and fuels is likely to be associated with a vehicle maintenance facility, confirmation samples were analyzed by the following methods:

- AK101—GRO;
- AK102—DRO;
- SW8240—VOCs;
- SW8270—SVOCs; and
- SW6010—Metals.

In addition to the sampling activities, the UST located on the south side of the garage was investigated to determine its approximate dimensions and content.

Results

Table 4-5 shows the results of field screening and laboratory confirmation analyses for surface soil samples collected around the Vehicle Maintenance Garage. Areas of stained soil had the highest concentrations of TPH: 40,200 mg/kg at VM-FS-01 and 20,200 mg/kg at VM-FS-08.

None of the confirmation samples contained GRO, VOCs, or SVOCs above screening criteria. Concentrations of DRO exceeded the State of Alaska cleanup level of 2000 mg/kg in three of the four samples submitted for laboratory confirmation, including a sample that was only found to contain 11.7 mg/kg TPH by the field screening method. The highest concentration of DRO (23,000 mg/kg) was detected in the sample collected at location VM-FS-01. Confirmation samples collected at locations VM-FS-06 and -08 contain 8700 and 7300 mg/kg DRO, respectively. The sample collected from location VM-FS-06, near the furnace flue, had an unusually grainy texture due to a high ash content, and contained low levels of polynuclear aromatic hydrocarbons (PNAs) that very likely result from the burning of fuel. The high DRO result for this sample is anomalous when compared with the field screening TPH value of 11.7 mg/kg. Qualitative observations of the chromatograms for samples from this AOC suggest that most of the DRO may be from old motor oil.

The analytical results for metals show that, with the exception of lead, no inorganic constituents in soil samples from the Vehicle Maintenance Garage exceed the UTLs. Since there are no risk-based or cleanup criteria for lead, data will be reported for all AOCs where lead exceeds the UTL

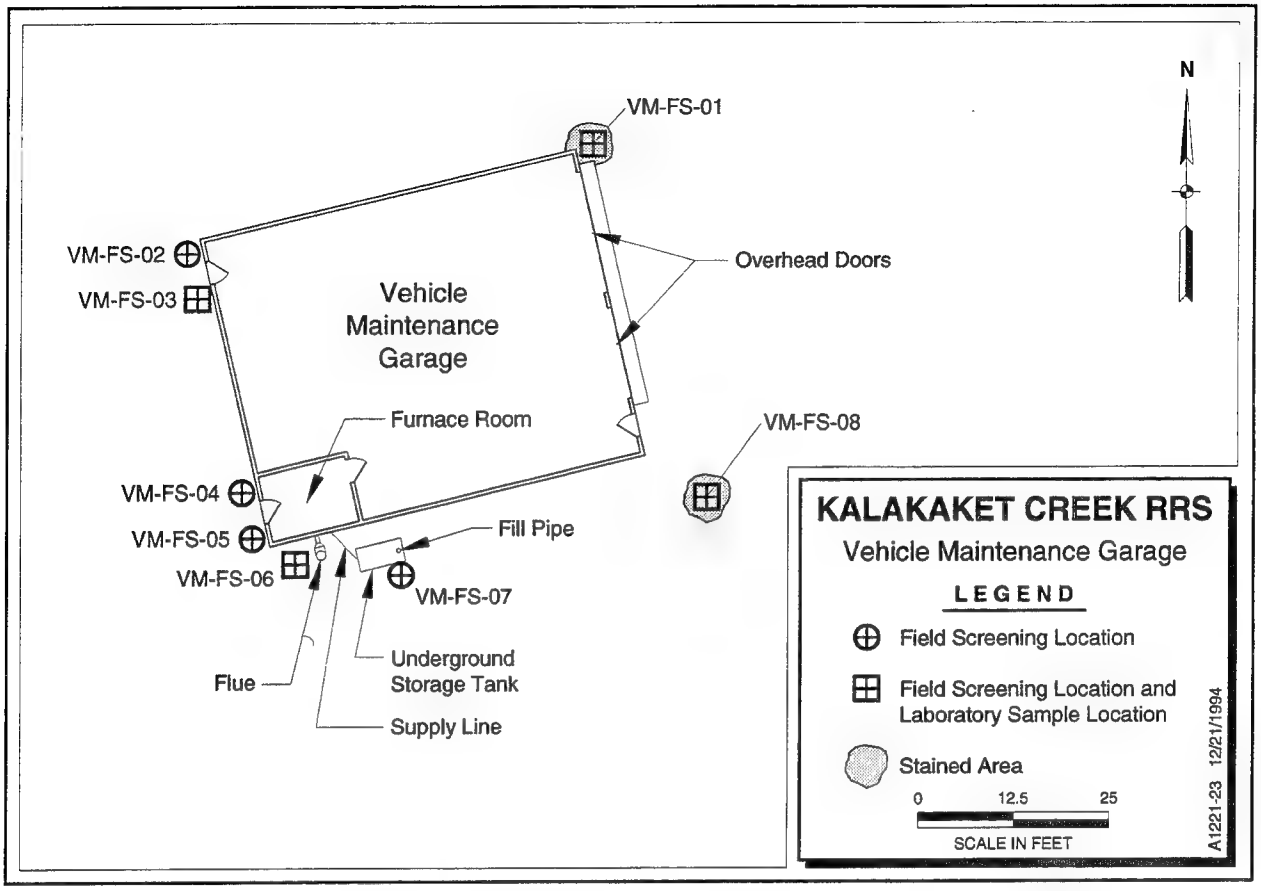


Figure 4-3. Sample Locations at the Vehicle Maintenance Garage AOC (Stained Area Symbol Is Not Indicative of Scale)

Table 4-5
Field Screening and Analytical Data for the Vehicle Maintenence Garage AOC

	AK101	AK102	SW6010	SW8240	SW8270	Field IR Analysis	
Location ID	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	Pb mg/kg [39.4][b]	All Analytes	All Analytes	AH mg/kg	TPH mg/kg
VM-FS-01	ND	23,000[c] (400)	25.8 (2)	bsc	bsc	242	40,200
VM-FS-02	NA	NA	NA	NA	NA	29	693
VM-FS-03	ND (1)	900[c] (20)	114 (1.85)	bsc	bsc	332	5360
VM-FS-04	NA	NA	NA	NA	NA	ND	79.8
VM-FS-05	NA	NA	NA	NA	NA	ND	20.8
VM-FS-06	ND (1)	8700[c] (200)	200 (2.32)	bsc	bsc	3	11.7
VM-FS-07	NA	NA	NA	NA	NA	1	37.4
VM-FS-08	ND (1)	7300[c] (400)	52.2 (1.7)	bsc	bsc	952	20,200

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
[b] UTL for background.
[c] Chromatograms indicate the presence of weathered motor oil within the diesel range.
NA = Not analyzed.
ND = Not detected.
bsc = Below screening criteria.
( ) = Sample quantitation limit.

of 39 mg/kg. The lead values in soils from the Vehicle Maintenance Garage range from 26 to 200 mg/kg, with three of four samples exceeding the UTL.

Investigation of the UST showed that its approximated dimensions are 8 by 5 ft in diameter. The tank still contains what appears to be gasoline that was identified from visual inspection of a grab sample collected from the tank with a disposable bailer.

Conclusions

The results of the field investigation at the Vehicle Maintenance Garage AOC suggest that isolated areas of soil contamination occur from the release of fuels and oils around the building. DRO concentrations up to 23,000 mg/kg were measured in soil samples collected from areas of surficial staining. However, no chlorinated solvents were detected in any of the samples. Solvent wastes may have been destroyed through incineration. A large gasoline-powered furnace located in the southwest corner of the building may have served as the facility incinerator. The furnace was fueled with gasoline from a 1000-gal. UST located outside of the building. This UST contains approximately 50 gal. of gasoline. The furnace was fitted with a large exhaust stack outside the building, and accumulation of significant ash deposits were found by the stack.

Elevated levels of lead in the soil may be related to the use of leaded gasoline on site. The highest concentration (200 mg/kg) was observed in the sample that was taken from the stained soil and ash found below the exhaust stack.

Recommendations

The UST discovered at the Vehicle Maintenance Garage should be emptied and closed to prevent any future release of gasoline. Isolated areas of soil staining occur around the building, indicating POL contamination from the release of diesel fuel and possibly motor oil. Even though the measured concentrations of DRO in soils exceed the State of Alaska cleanup standards for Level D, the soils should be left in place to degrade naturally. The areas of staining cover less than 10 ft^2 each. No chlorinated solvents or components of benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in any sample. Lead in the soil is probably not mobile and poses minimal potential to affect the deep groundwater. Following the closure of the UST, the area should be recommended for NFRAP status.

4.2.3 Paint Storage Building

A 640-ft^2 storage facility, located approximately 200 ft northeast of the Vehicle Maintenance Garage, was used for the temporary storage of paints, thinners, and other small containers of chemicals during the operation of the facility. The building has been partially demolished and no walls are currently standing. The collapsed walls and other debris from the building partially cover the concrete slab and the surrounding soil. Spills or releases of chemicals stored at the facility could have occurred around the facility, particularly around doorways. Vegetation is fairly well established around this AOC.

Investigation Activities

An organic vapor monitor (OVM) was used to analyze headspace for eight surface soil samples collected to assess the presence of VOCs in soils near the Paint Storage Building. Samples were collected near former doorways, which are areas of probable contamination. Because some contaminants potentially associated with this type of facility cannot be detected by the headspace method (e.g., metals and pesticides), half of the samples were submitted for laboratory confirmation. These samples were analyzed by the following methods:

- SW8240—VOCs;
- SW8270—SVOCs;
- SW8080—Pesticides and PCBs; and
- SW6010—Metals.

Figure 4-4 shows the locations chosen for field screening and laboratory confirmation analyses.

Results

The results of the headspace analyses indicated that the soils near the doorways of the facility (i.e., those most likely to be affected) do not contain elevated concentrations of VOCs. The OVM readings for the samples were indistinguishable from background readings.

None of the four soil samples submitted for laboratory confirmation analysis contained VOCs, SVOCs, or pesticides in excess of the screening criteria. PCB-1260 was detected in the sample collected from location PS-FS-03 at 1440 µg/kg. Lead also occurred in this sample at a concentration exceeding the UTL of 39 mg/kg (121 mg/kg). No other inorganic analytes exceeded their UTLs at this AOC.

Conclusions

The results of field screening and laboratory analysis of soil samples indicated that there has been no substantial release or spill in the vicinity of the Paint Storage Building. The lead and PCBs detected in the sample from PS-FS-03 are isolated occurrences.

Recommendations

There appears to be no threat to human health or the environment from activities that occurred at this AOC. Therefore, this AOC is recommended for NFRAP status.

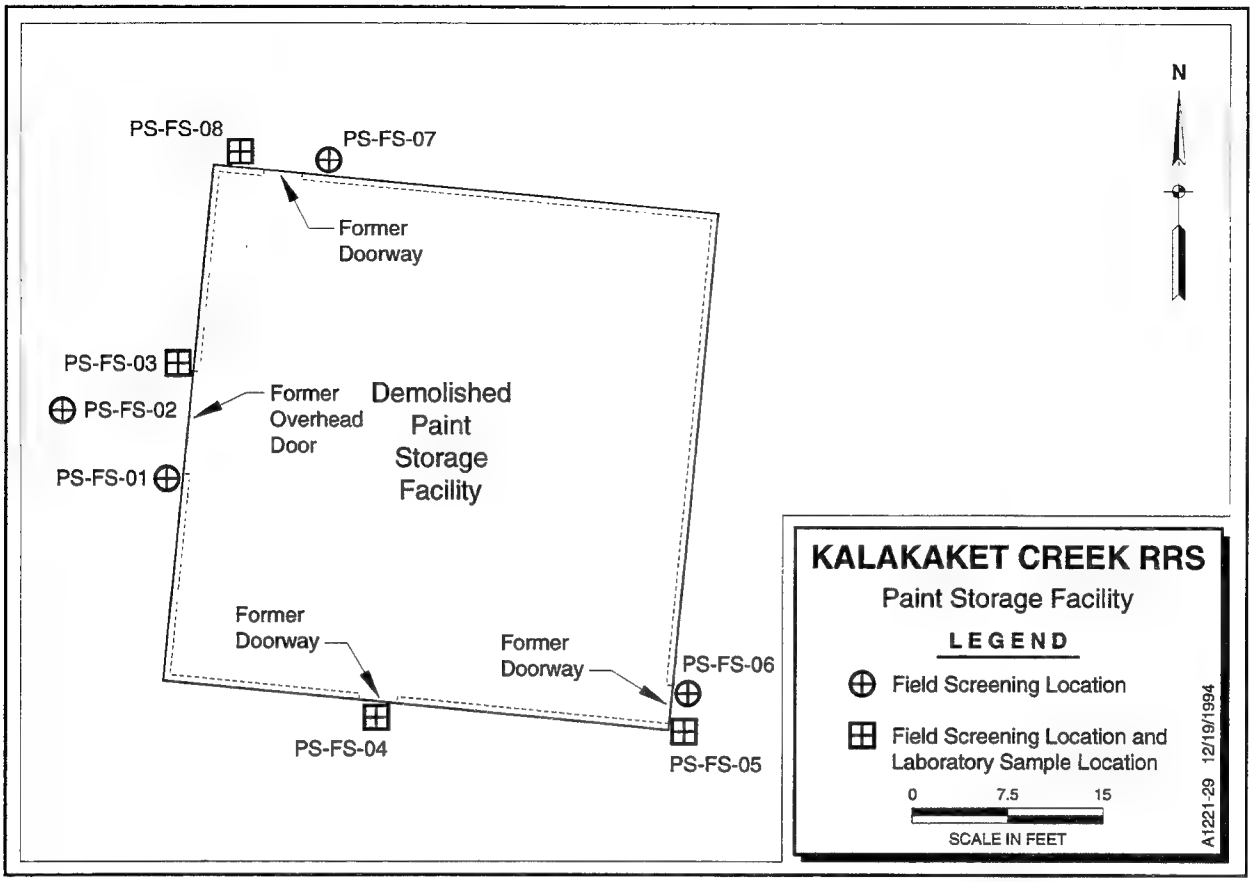


Figure 4-4. Sample Locations at the Paint Storage Building AOC

4.2.4 Equipment Building

Large diesel generators were used to provide power for the radio relay site. These generators were kept in the eastern portion of the Equipment Building. Fuel was delivered to the generators through a buried 2-in. pipeline from the bulk fuel storage containers located approximately 200 ft south of the building. Standard maintenance practices may have resulted in the release of waste oil, solvents, and fuels around the building. In the past at similar sites, waste liquids were typically poured on the ground close to the building doors. Some soil staining and vegetative stress were noted in the area around the eastern door to the facility. The largest stained area, shown in Figure 4-5, was located approximately 20 ft from the southeast corner of the building. However, this area appears to correspond to the building's parking lot, and the soil staining may be the result of small leaks from vehicles.

Investigation Activities

Samples for field screening data were collected from the 10 locations shown in Figure 4-6. These locations were chosen because of their proximity to the door or visible soil staining. The 10 samples were screened for AH and TPH using the field IR analyzer and for PCBs using an immunoassay test kit. On the basis of the results of the field screening, four of the locations were resampled for laboratory confirmation analysis. These samples were analyzed using the following methods:

- AK101—GRO;
- AK102—DRO;
- SW8240—VOCs;
- SW8080—Pesticides and PCBs; and
- SW6010—Metals.

Results

The results of both field screening and laboratory confirmation analyses for samples collected around the equipment building are presented in Table 4-6. TPH was detected in all 10 of the samples screened using the IR analyzer; concentrations range from 237 to 32,600 mg/kg. Several of the samples with elevated concentrations of TPH were collected from areas with noticeable soil staining; however, the sample collected at EQ-FS-06 had no noticeable odor or staining, yet contained the highest concentration of AH (922 mg/kg) and the fourth highest concentration of TPH (12,600 mg/kg). The only physical evidence of contamination at this location was a lack of vegetation.

The results of the immunoassay test for PCBs showed that the samples collected from around the building doors (EQ-FS-03, -04, -05, and -06) contained PCBs at levels less than 10 ppm (mg/kg).

Figure 4-5. Soil Staining at Sample Location EQ-FS-10, Equipment Building AOC

Laboratory analysis of the four confirmation samples revealed that GRO and VOCs were below the screening criteria. However, DRO, 4,4'-DDT, dieldrin, and PCB-1260 each exceeded their respective screening criteria in the area around the equipment building. Two of the four confirmation samples contained DRO in excess of the State of Alaska cleanup level of 2000 mg/kg. These two samples were collected from stained areas (EQ-FS-02 and -03) and also contained the highest TPH concentrations. None of the chromatograms for the DRO analyses suggests the presence of actual diesel fuel but, rather, appears to be the result of motor or fuel oil.

The samples collected from locations EQ-FS-02, -03, and -05 all contained pesticides and/or PCBs in excess of the screening criteria. Samples from all three locations exceeded the EPA Region III residential RBC for dieldrin (40 µg/kg). However, laboratory data indicate that interference caused by PCBs makes the quantification of dieldrin questionable. The sample from location EQ-FS-02 also contained 4,4'-DDT at a concentration exceeding the EPA Region III residential RBC of 1900 µg/kg. The samples collected at locations EQ-FS-03 and EQ-FS-05 contained 9790 and 4910 µg/kg, respectively, of PCB-1260, which are above the EPA cleanup value of 1000 µg/kg. No pesticides or PCBs were detected above the screening criteria in the fourth confirmation sample, collected at EQ-FS-08. However, this sample contained 56 mg/kg lead, in excess of the 39 mg/kg UTL.

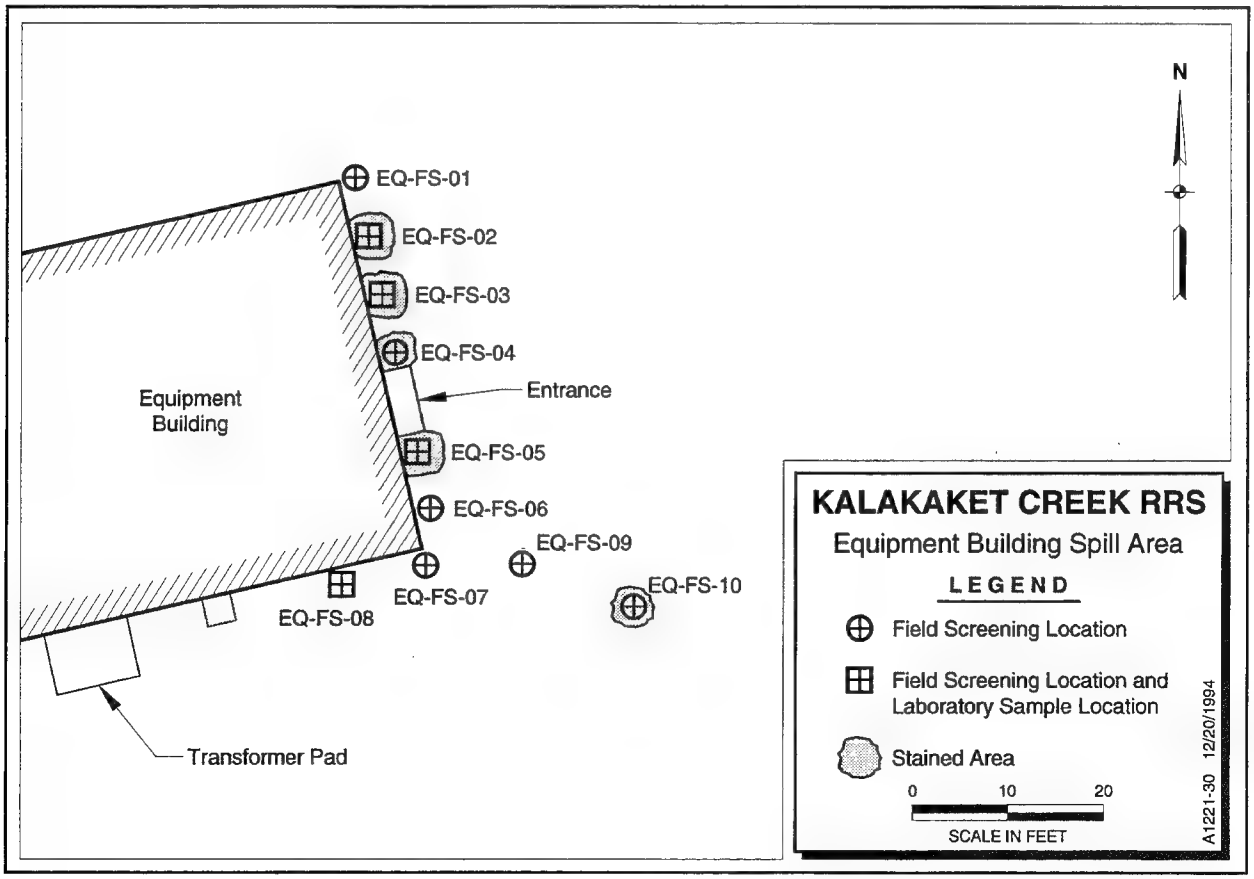


Figure 4-6. Sample Locations at the Equipment Building AOC (Stained Area Symbol Is Not Indicative of Scale)

Table 4-6
Field Screening and Analytical Data for the Equipment Building AOC

Location ID	AK101	AK102	SW6010	SW8240	SW8080 Pesticides and PCBs			Field IR Analysis		Immunoassay
	GRO µg/kg [1000][a]	DRO mg/kg [2000][a]	Pb mg/kg [39.4][b]	All Analytes	4,4'-DDT µg/kg [1900][c]	Dieldrin µg/kg [40][c]	PCB- 1260 µg/kg [1000][d]	AH mg/kg	TPH mg/kg	PCB mg/kg
EQ-FS-01	NA	NA	NA	NA	NA	NA	NA	33	730	ND
EQ-FS-02	ND (5)	2400 (40)	[e]14.7 (1.93)	bsc	3430 (40.8)	98.4 (31.2)	ND (390)	415	18,900	ND
EQ-FS-03	ND (5)	3600 (40)	[e]36.1 (1.99)	bsc	NDw (147)	128w (45.9)	9790 (396)	ND	32,600	>10
EQ-FS-04	NA	NA	NA	NA	NA	NA	NA	347	6290	>1
EQ-FS-05	ND (5)	1000 (20)	[e]28.9 (1.83)	bsc	NDw (139)	104w (43.5)	4910 (375)	922	12,600	>1
EQ-FS-06	NA	NA	NA	NA	NA	NA	NA	ND	8300	>5
EQ-FS-07	NA	NA	NA	NA	NA	NA	NA	74.6	2360	ND
EQ-FS-08	ND (5)	160 (20)	[e]56.5 (1.91)	bsc	135 (40.1)	ND (44.5)	ND (384)	ND	237	ND
EQ-FS-09	NA	NA	NA	NA	NA	NA	NA	ND	3960	ND
EQ-FS-10	NA	NA	NA	NA	NA	NA	NA	ND	16,400	ND

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
[b] UTL for background concentrations of metals.
[c] EPA Region III RBC.
[d] EPA cleanup level.
[e] Chromatograms indicate the presence of motor or fuel oil within the diesel range.
NA = Not analyzed.
ND = Not detected.
bsc = Below screening criteria.
w = Interference from high concentrations of PCBs makes quantification of this analyte questionable.
( ) = Sample quantitation limit.

Conclusions

Samples collected from surface-stained soils indicate that isolated releases of POL have occurred at the AOC. The staining occurs in a parking area and along the northeastern, outside wall of the building. The total area of surface staining is approximately 8 ft^2. Samples collected from unstained soils do not contain significant quantities of POL as measured by DRO or GRO. The presence of the pesticides 4,4'-DDT and dieldrin in the stained soil may be the result of normal application for pest management and are not suggestive of focused areas of pesticide handling. One sample collected at this AOC contained lead at a concentration slightly above the UTL of 39 mg/kg, which appears to be an isolated occurrence.

Recommendations

Isolated releases of POL and pesticides in the soil do not pose a significant threat to human health or the environment. Since the areas of contamination appear to be isolated and not widespread, and since there is little potential for future impact to groundwater at this facility, the AOC is recommended for NFRAP status after ensuring that all POL materials are drained from buried lines.

4.2.5 Equipment Building Transformers

A 208- to 2300-volt three-phase transformer was located on a concrete pad adjacent to the southern wall of the Equipment Building. Leaks or maintenance activities have resulted in the release of insulating oils that contain PCBs. During the cleanup activities conducted by the 5099 CEOS in 1984, PCB-contaminated soils were removed from the area surrounding the concrete transformer pad. Soils containing greater than 50 ppm PCBs were drummed and removed from the AOC. It is assumed that the soils were screened in the field using a chlorinol-type test kit, which was commonly used by the Air Force at remote sites (USAF, 1994e). The excavations, which are less than 2 ft deep, have remained open since the initial cleanup activities. Vegetation, particularly grass, is well established around the transformer pad and within the excavation.

Investigation Activities

Surface soil samples collected from 10 locations around the transformer pad were analyzed for PCBs using an immunoassay field test kit. On the basis of the results of the field screening, four of these locations, with a range of PCB concentrations from less than 1 ppm to greater than 12.5 ppm, were resampled and submitted for laboratory confirmation analysis using EPA Method SW8080 (pesticides and PCBs). Figure 4-7 shows the sample locations for both field screening and laboratory confirmation.

Results

The field screening and laboratory analytical results for surface soil samples collected from around the transformer pad are summarized in Table 4-7. The results of the immunoassay test for PCBs are semiquantitative, but suggest that soils around the pad contain PCBs in concentrations exceeding 10 ppm.

Two of the four confirmation samples were collected from the bottom of the excavations (ET-FS-05 and -06). Another confirmation sample was collected from the location that exhibited the highest field screening result (>12.5 ppm at ET-FS-10). The laboratory PCB-1260 concentrations exceed the screening criterion (1000 µg/kg) in all three of these samples. The confirmation sample collected at location ET-FS-06, in the bottom of an area thought to be excavated using the cleanup criterion of 50 ppm, was found to contain 124,000 µg/kg (124 ppm) PCB-1260. All three of these samples were also reported to contain dieldrin in excess of the EPA Region III residential RBC of 40 µg/kg, but the laboratory cited interference by PCBs. The fourth confirmation sample, collected at location ET-FS-03, did not contain concentrations of PCBs or dieldrin in excess of the screening criteria.

Conclusions

The occurrence of PCB-1260 (124,000 µg/kg) in the sample collected from the bottom of the excavation south of the transformer pad indicates that the removal action that occurred in 1984 was incomplete. The concentration of dieldrin detected in the samples is suspect. Because of the high levels of PCBs in the samples collected from this AOC, the laboratory was unable to quantify the concentration of the compound. It is uncertain whether the unquantified levels of dieldrin in the soil may be the result of normal application for pest management.

Recommendations

A removal action should be evaluated for this AOC. Additional excavation of PCB-contaminated soil, along with confirmation sampling, should be completed to reduce the risk to human health and the environment. Following the removal action, the AOC should be recommended for NFRAP status.

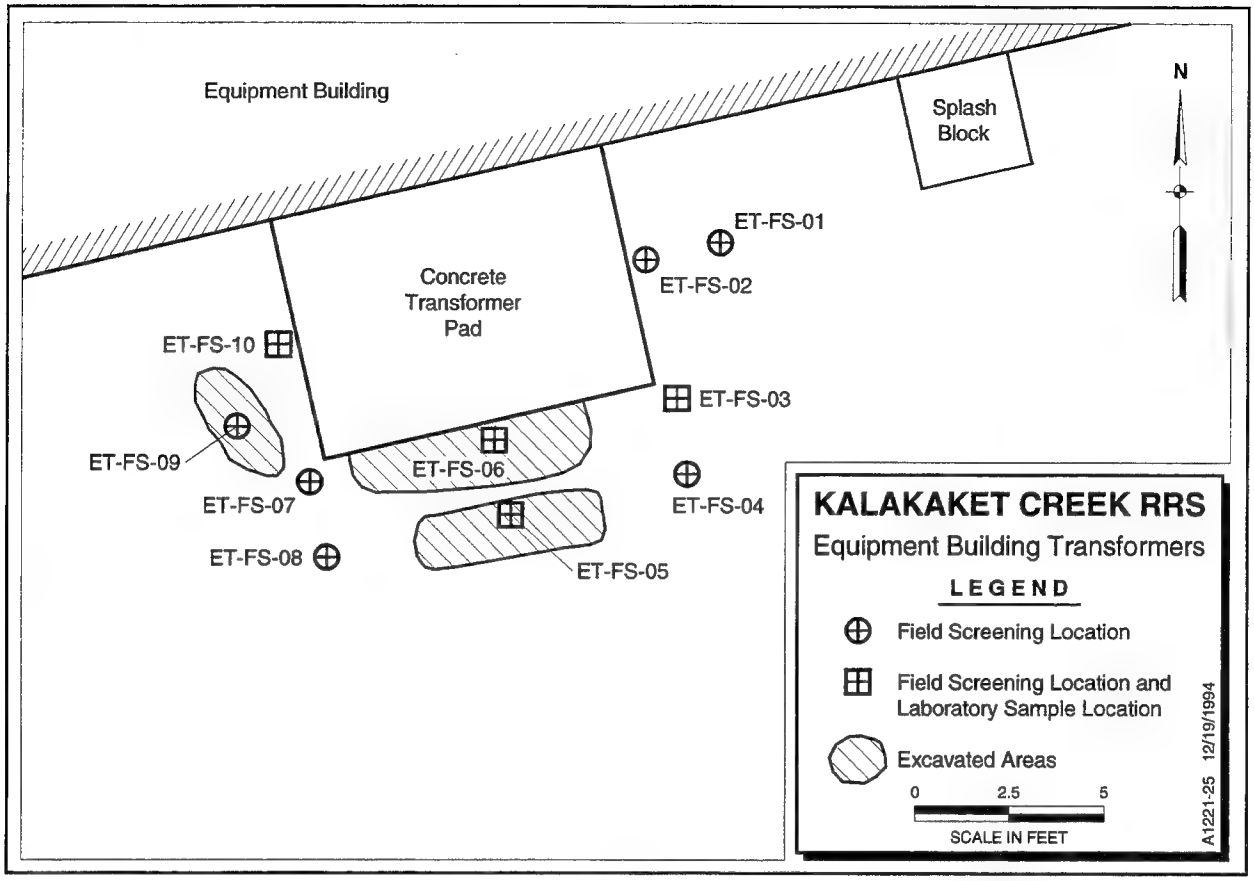


Figure 4-7. Sample Locations at the Equipment Building Transformers AOC

Table 4-7
Field Screening and Analytical Data for the Equipment Building Transformer AOC

Location ID	SW8080 Pesticides and PCBs		Immunoassay
	Dieldrin µg/kg [40][a]	PCB-1260 µg/kg [1000][b]	PCB mg/kg
ET-FS-01	NA	NA	>1,<5
ET-FS-02	NA	NA	<1
ET-FS-03	2.46 (0.469)	287 (4.05)	<1
ET-FS-04	NA	NA	>1,<5
ET-FS-05	141w (23.3)	14,000 (201)	>10
ET-FS-06	357w (23.7)	124,000 (1640)	>10
ET-FS-07	NA	NA	<1
ET-FS-08	NA	NA	<1
ET-FS-09	NA	NA	>5,<10
ET-FS-10	88.2w (22.5)	15,800 (194)	>12.5

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] EPA Region III RBC.
[b] EPA cleanup level.
NA = Not analyzed.
w = Interferences from high concentrations of PCBs makes quantification of this analyte questionable.
( ) = Sample quantitation limit.

4.2.6 Diesel Tanks and Fill Area

Two 3000-barrel aboveground storage tanks located in the southeast portion of top camp were used to store fuel oils for the generation of heat and electricity. These tanks were filled from trucks that ferried the diesel fuel from a temporary storage tank located adjacent to the runway. A standpipe that appears to drain into an aboveground barrel filled with gravel may have served as the fill point for the tanks. This standpipe and barrel are located north of the tanks. Dewatering valves are located at the base of the two tanks. Diesel may have been released to the ground during tank dewatering. Vegetation in the area surrounding the tanks and the fillstand is sparse; however, it appears from the flat-graded terrain that a road or parking area may have existed here. One small area of stained soil, approximately 5 ft^2, may be the result of leaks from vehicles.

Investigation Activities

Figure 4-8 shows the locations of field screening and confirmation samples. Six surface soil samples were collected from the area around the diesel tanks and standpipe. Two of these samples were collected in areas of apparent fuel staining. Figure 4-9 shows the limited areal extent of the larger stained area. These samples were field screened for TPH and AH using the IR analyzer. Three of these six locations were resampled and submitted for laboratory confirmation by methods AK101 and AK102 (GRO and DRO, respectively).

Results

Table 4-8 summarizes the results of field screening and laboratory analysis of the surface soil samples collected near the diesel tanks. The field screening results show that the highest concentrations occur in samples from stained areas (DT-FS-02 and -03). The sample collected at DT-FS-03 contained 23,100 mg/kg TPH. This sample was collected in an area where staining may have resulted from vehicle leaks. The sample collected from the location near the standpipe, DT-FS-02, contains 887 mg/kg TPH. Concentrations of TPH range from 13 to 65 mg/kg in the samples from the remaining four locations.

DRO were detected in all three confirmation samples and GRO in one. The two confirmation samples collected from stained areas contained the highest concentrations of DRO—1500 and 1600 mg/kg. GRO were also detected in one of these samples at 40 mg/kg. The chromatograms indicated that the major portion of the GRO are due to the presence of lighter components in a weathered diesel.

Conclusions

Soil staining located in the diesel tank fill area may be the result of fuel releases from activities at the AOC. Staining appears to be limited to an isolated spot in the truck parking area and the area surrounding the fill point valve. Concentrations of DRO and GRO do not exceed the State of Alaska cleanup standards of 2000 mg/kg for Level D sites.

Recommendations

NFRAP status is recommended for this AOC. Since the tanks have been drained and are empty, there is no threat of future release from the AOC.

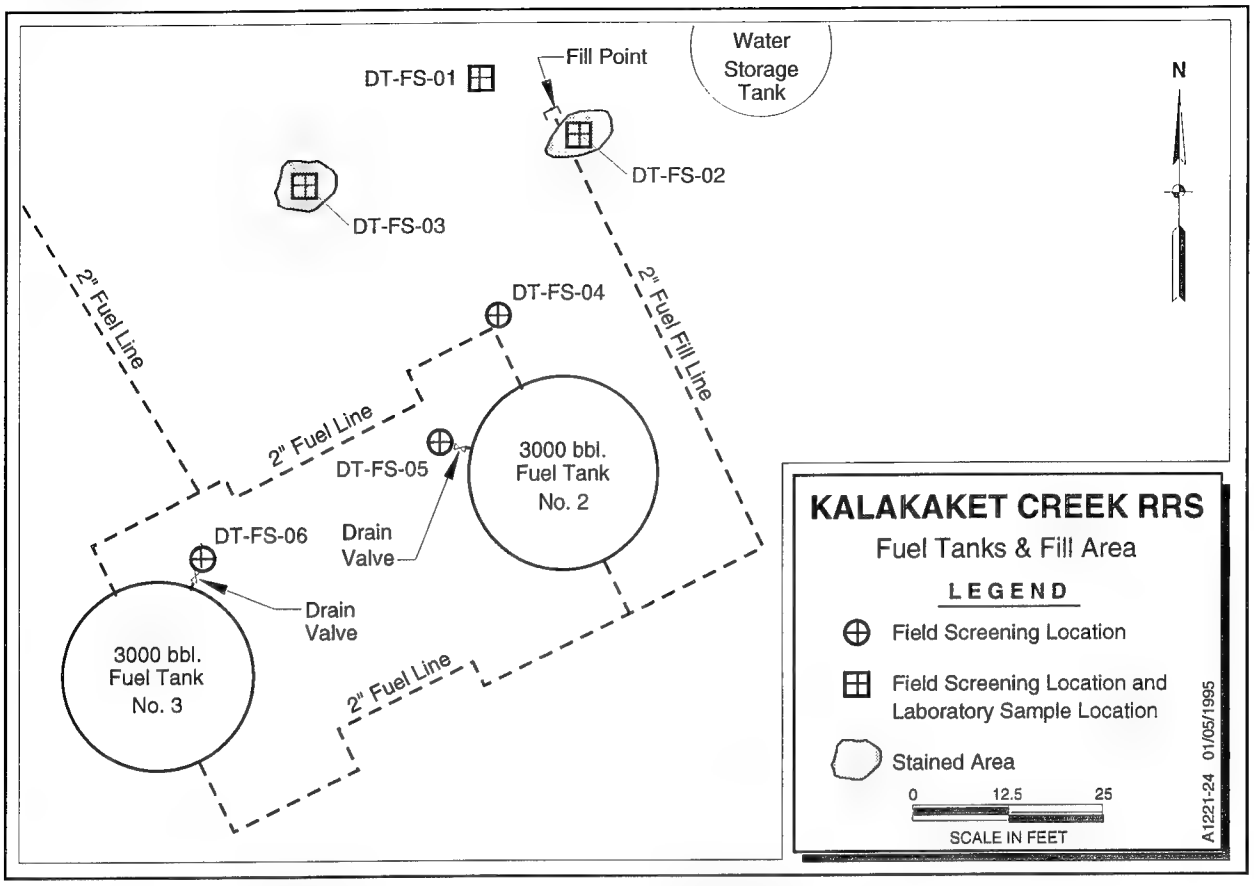


Figure 4-8. Sample Locations at the Diesel Tanks and Fill Area (Stained Area Symbol Is Not Indicative of Scale)

Figure 4-9. Sample Location DT-FS-03 is the Largest Area of Soil Staining at the Diesel Tanks and Fill Area AOC

Table 4-8
Field Screening and Analytical Data for the Diesel Tanks and Fill Area

Location ID	AK101	AK102	Field IR Analysis	
	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	AH mg/kg	TPH mg/kg
DT-FS-01	ND (5)	11 (4)	1.9	65
DT-FS-02	40 [b] (10)	1600 (8)	35.5	887
DT-FS-03	ND (5)	1500 (8)	1960	23,100
DT-FS-04	NA	NA	1.96	16.7
DT-FS-05	NA	NA	1.98	44.6
DT-FS-06	NA	NA	2	13

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
[b] Chromatogram indicates the presence of a weathered diesel within the gasoline range.
NA = Not analyzed.
ND = Not detected.
( ) = Sample quantitation limit.

4.2.7 Septic Tank Outfall Area

Wastewater generated at the facility flowed into a heated and insulated septic tank south of the dormitory building. The effluent from the tank was released onto the ground from a heated discharge pipe. The point of release is located on the steep hill slope south of the facility. The ground at this point is covered predominantly with large rocks and gravel. In August 1994 there appeared to be no stress to the vegetation surrounding the discharge point. Sink drains in the facility may have been used to dispose of small quantities of waste liquids other than water, which was a common method of waste disposal at similar facilities.

Investigation Activities

One surface soil sample was collected at the outfall point and submitted for laboratory analysis to determine if waste liquids other than water had been disposed of at this AOC. Figure 1-4 shows the location of the Septic Tank Outfall. The predominance of large rocks at this AOC, and a corresponding lack of soil, complicated sample collection at this site. However, since the area potentially affected by the outfall is well defined, it was not necessary to conduct initial sampling for field screening. The laboratory sample, collected at location 94-SO-SS-01, was analyzed using the following methods:

- AK101—GRO;
- AK102—DRO;
- SW8240—VOCs;
- SW8270—SVOCs;
- SW8080—Pesticides and PCBs; and
- SW6010—Metals.

Results

The laboratory results for the surface soil sample collected at the Septic Tank Outfall are summarized in Table 4-9. GRO, DRO, and VOCs were not detected above their screening criteria in this sample. Several pesticides, including dieldrin, heptachlor epoxide, and 4,4'-DDE, were detected at concentrations above the screening criteria. However, because of the presence of PCB-1260 at a concentration of 131,000 µg/kg, the quantification of these pesticides is unconfirmed. This sample also contains 0.983 µg/kg benzo(b)fluoranthene, just above the EPA Region III residential RBC of 0.88 µg/kg but below the sample quantitation limit (SQL) of 3.02 µg/kg.

The Septic Tank Outfall surface soil sample contains 257 mg/kg antimony. It was the only sample collected during this investigation that exceeded the antimony UTL of 30 mg/kg. In addition, this sample exceeded the UTL for lead, with 219 mg/kg.

Conclusions

Soils at the outfall contain elevated levels of lead and antimony, and concentrations of pesticides and PCBs that exceed the screening criteria. Because of the high level of PCBs (131,000 µg/kg) in the sample, the laboratory was unable to confirm the quantification of the pesticides.

Recommendations

Because of the large rocks covering the area around the outfall, it is not feasible to conduct a removal action at this AOC. Therefore, the Septic Tank Outfall is recommended for NFRAP status.

Table 4-9
Analytical Data for the Septic Tank Outfall AOC

Location ID	AK101	AK102	SW6010		SW8240	SW8270	SW8080 Pesticides and PCBs			
	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	Sb mg/kg [30.3][b]	Pb mg/kg [39.4][b]	All Analytes	Benzo(b) fluoranthene mg/kg [0.88][c]	4,4'-DDE µg/kg [1900][c]	Dieldrin µg/kg [40][c]	Heptachlor Epoxide µg/kg [70][c]	PCB-1260 µg/kg [1000][c]
94-SO-SS-01	ND	1400 (40)	257 (8.25)	219 (2.99)	bsc	0.983fj (3.02)	2050w (138)	1950w (151)	539p (69.8)	131,000 (1300)

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
[b] UTL for background.
[c] EPA Region III RBC.
[d] EPA cleanup level.
ND = Not detected.

4.2.8 Gasoline Tank

A small aboveground gasoline tank located near the fire pumphouse and water storage tanks at top camp was added to the AOC list during the September sampling event. This tank is surrounded on all four sides by concrete walls, and the space between the tank and the enclosure is filled with gravel and sand. Vegetation in the immediate vicinity is sparse, but does not appear to be stressed. No soil staining or odor was observed in the area surrounding the enclosure.

Investigation Activities

Figure 4-10 shows the location of the gasoline tank and two surface soil samples that were collected adjacent to the tank enclosure. These samples were screened for VOCs in headspace using an OVM. Although neither screening result exceeded instrument background (1 ppm), one location was resampled for laboratory confirmation. The sample was analyzed by the State of Alaska methods for GRO and DRO.

Results

Laboratory confirmation analyses of the surface soil sample collected near the gasoline tank (GT-FS-02) indicate the absence of GRO above the SQL. DRO were detected at a concentration of 56 mg/kg, well below the State of Alaska cleanup level.

Conclusions

The field screening and laboratory results for surface soils from this AOC indicate that no releases/spills of gasoline have occurred in the vicinity of the storage tank. Therefore, this AOC should be considered as an ABAL.

Recommendations

The Gasoline Tank AOC is recommended for NFRAP status.

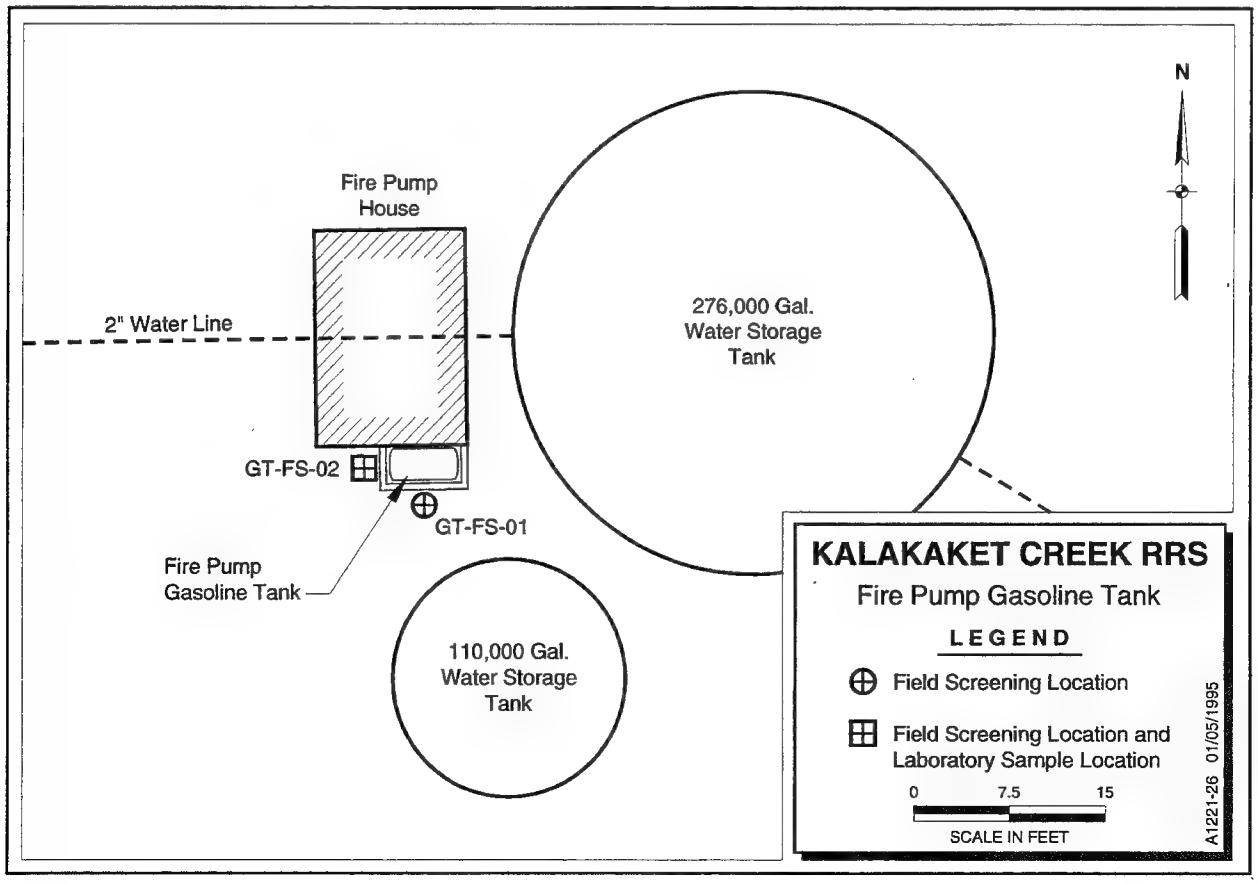


Figure 4-10. Sample Locations at the Gasoline Tank AOC

4.2.9 Drum Storage Area No. 1

Three areas of past drum storage have been identified at Kalakaket Creek RRS on the basis of the results of the records search and the interviews. Since all chemicals used during the operation of the facility were shipped in drums or smaller containers, it is possible that spills of a variety of chemicals could have occurred at these areas.

DSA No. 1 is located approximately 100 ft north of the Vehicle Maintenance Garage. This area is referred to as the "barrel storage dock" on a 1963 survey map completed by the U.S. Army Corps of Engineers, but it is not readily apparent in the field. Because of the consistently high winds that occur on the top of the mountain, empty or partially full drums were seldom stored at the facility (D. Patrick, personal communication, August 1994). Much of the area to the north of the garage is open and covered with gravel; small clumps of alders may indicate areas where the ground has been disturbed. Miscellaneous debris is common across the area, and an isolated drum bung was observed on the ground during the August 1994 site visit. Only one area of stained soil, near a small stand of alders, was located. The extent of the staining is approximately 15 ft^2.

Investigation Activities

Because of the uncertainty of the exact location of DSA No. 1, field screening activities were expanded to cover a larger area. Ten surface soil samples were collected from the cleared area north and west of the Vehicle Maintenance Garage and screened for TPH and AH using the IR analyzer, and for PCBs and DDT using immunoassay test kits. Two additional screening samples were collected farther to the north of the facility, following the discovery of stained soil in that area. Another two samples were collected just west of the Vehicle Maintenance Garage to determine if drum storage occurred adjacent to that facility. These four additional samples were also screened for TPH, AH, PCBs, and DDT. All sample locations are shown in Figure 4-8.

On the basis of the results of the field screening, two sample locations were resampled for laboratory confirmation analysis by the following methods:

- AK101—GRO;
- AK102—DRO;
- SW8240—VOCs;
- SW8270—SVOCs;
- SW8080—Pesticides and PCBs; and
- SW6010—Metals.

Results

The results of both field screening and laboratory confirmation analyses are shown in Table 4-10. TPH levels range from 19 to 48,800 mg/kg in the 14 field screening samples, with the highest concentration of TPH occurring in the sample from the area of stained soil located north of the Vehicle Maintenance Garage (DA-FS-03). The next two highest concentrations of TPH (7660 and 21,900 mg/kg) occurred in the samples collected west of the Vehicle Maintenance Garage (locations DA-FS-01 and -02, respectively).

PCB screening by the immunoassay method indicated that concentrations were less than or equal to 5 ppm in 5 of the 14 samples, and less than 1 ppm in the remaining samples. DDT screening by the immunoassay method showed that 13 of the samples contained approximately 1 ppm or less total DDT. The remaining sample, collected from location DA-FS-03, contained DDT at a concentration between 2.5 and 25 ppm.

The two samples that were submitted for laboratory confirmation were collected from locations DA-FS-03 and DA-FS-18. The sample collected from location DA-FS-03, the area of stained soil north of the Vehicle Maintenance

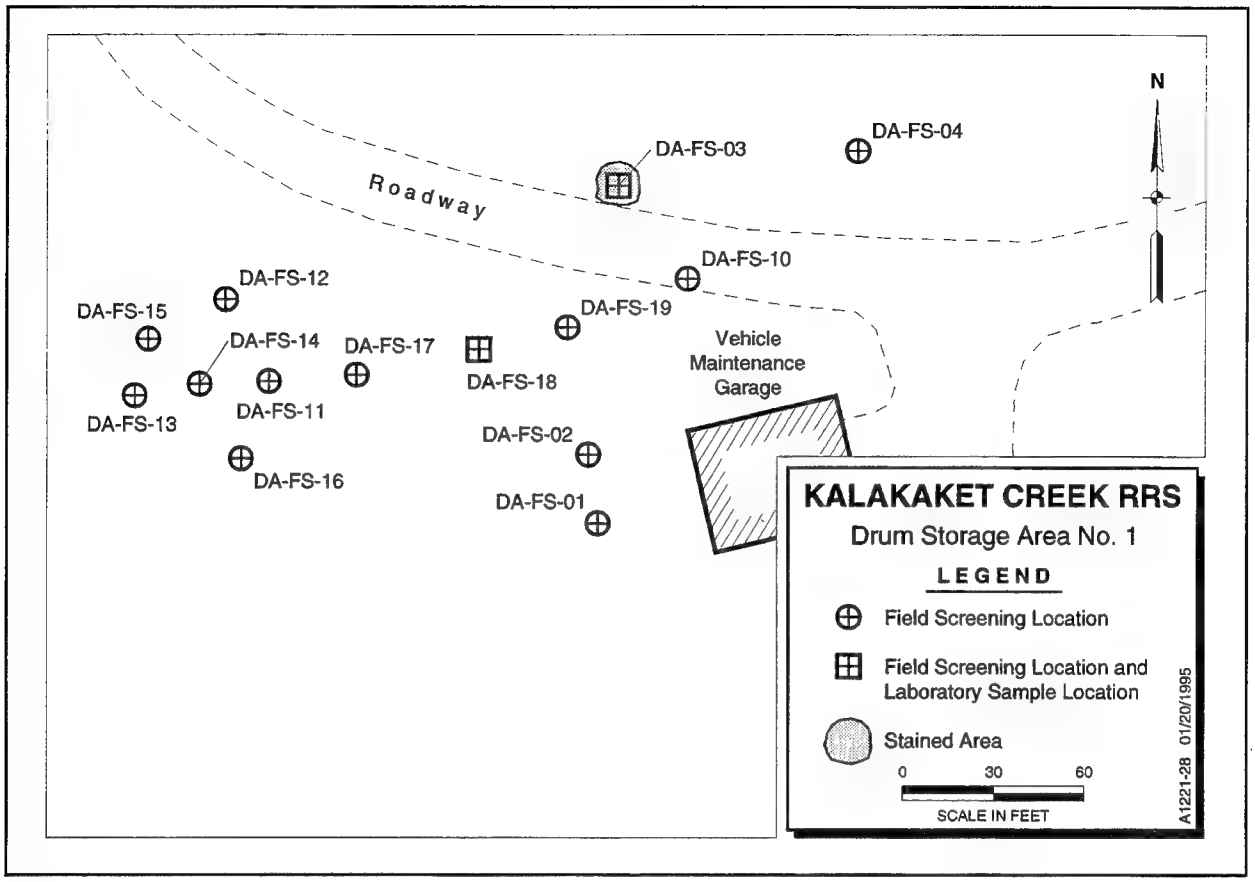


Figure 4-11. Sample Locations at DSA No. 1
(Stained Area Symbol Is Not Indicative of Scale)

Table 4-10
Field Screening and Analytical Data for the Drum Storage Area No. 1

Location ID	AK101	AK102	SW6010	SW8240	SW8270	SW8080	Field IR Analysis		Immunoassay	
	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	All Analytes				AH mg/kg	TPH mg/kg	DDT mg/kg	PCB mg/kg
DA-FS-01	NA	NA	NA	NA	NA	NA	47.8	7660	ND	<5
DA-FS-02	NA	NA	NA	NA	NA	NA	369	21,900	ND	<5
DA-FS-03	ND (1)	7200 [b] (400)	bsc	bsc	bsc	bsc	ND	48,800	<25	<5
DA-FS-04	NA	NA	NA	NA	NA	NA	1.85	27.8	ND	<1
DA-FS-10	NA	NA	NA	NA	NA	NA	32.5	596	>1	<5
DA-FS-11	NA	NA	NA	NA	NA	NA	ND	77.5	ND	<1
DA-FS-12	NA	NA	NA	NA	NA	NA	ND	38.9	ND	<1
DA-FS-13	NA	NA	NA	NA	NA	NA	ND	19	ND	<1

(Continued)

Location ID	AK101	AK102	SW6010	SW8240	SW8270	SW8080	Field IR Analysis		Immunoassay	
	GRO mg/kg [1000]ª	DRO mg/kg [2000]ª	All Analytes				AH mg/kg	TPH mg/kg	DDT mg/kg	PCB mg/kg
DA-FS-14	NA	NA	NA	NA	NA	NA	ND	172	>0.2	<1
DA-FS-15	NA	NA	NA	NA	NA	NA	2.96	123	ND	<1
DA-FS-16	NA	NA	NA	NA	NA	NA	3.88	71.8	>1	<1
DA-FS-17	NA	NA	NA	NA	NA	NA	3.74	60.7	ND	<5
DA-FS-18	ND (1)	6 (4)	bsc	bsc	bsc	bsc	3.65	22.8	ND	<1
DA-FS-19	NA	NA	NA	NA	NA	NA	ND	395	>0.2	<1

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
ª State of Alaska cleanup level.
ᵇ Chromatogram indicates the presence of weathered motor oil or grease within the diesel range.
NA = Not analyzed.
ND = Not detected.
bsc = Below screening criteria.
( ) = Sample quantitation limit.

Garage, contains DRO at 7200 mg/kg. The chromatogram for this sample indicates that the source of the DRO may be old motor oil or grease. The concentrations of DDT compounds in this confirmation sample were very low (a total of approximately 55 µg/kg) as compared with the results of the field screening (2.5 to 25 ppm, or 2500 to 25,000 µg/kg), suggesting interference by other contaminants. Likewise, the presence of low levels of PCBs, as indicated by the field screening results, was not confirmed by the laboratory results for this sample (PCBs were not detected). No analyte concentrations exceeded the screening criteria in the confirmation sample collected from location DA-FS-18.

Conclusions

The only contaminant detected above the screening criteria in surface soils at DSA No. 1 was DRO at 7200 mg/kg, exceeding the State of Alaska cleanup level of 2000 mg/kg, at DA-FS-03. This sample location is within the only stained area found at DSA No. 1, which is limited to an areal extent of approximately 15 ft^2.

Recommendations

The limited area of POL contamination identified by the SI does not constitute a risk to human health or the environment. DSA No. 1 is recommended for NFRAP status.

4.2.10 Drum Storage Area No. 2

DSA No. 2 is located north of the eastern edge of the runway. This area was identified during the personnel interviews (J. Donnelly, personal communication, August 1994), and located using aerial photographs in which it appears as an area of disturbed vegetation approximately 1000 ft north of the runway. Vegetation has not been fully reestablished at this AOC. The drums have been removed, but soil staining and miscellaneous debris are common. Stained areas, shown in Figures 4-12 and 4-13, range in size from a few square feet to approximately 50 ft^2. Recent review of as-built drawings and high-altitude aerial photos suggest that this may also be the location of the installation's refuse landfill. Cans, bottles, building materials, and other solid waste were observed on the ground in the area.

Investigation Activities

Six surface soil samples were collected at DSA No. 2 and screened for AH, TPH, DDT, and PCBs. On the basis of the results of the screening, two of the locations were resampled and submitted for laboratory confirmation analysis by the following methods:

- AK101—GRO;
- AK102—DRO;
- SW8240—VOCs;
- SW8270—SVOCs;
- SW8080—Pesticides and PCBs; and
- SW6010—Metals.

Figure 4-9 shows the locations of the field screening and laboratory sampling points.

Results

Table 4-11 summarizes the results of the field screening and laboratory confirmation analyses for soil samples from DSA No. 2 TPH was detected in concentrations from 15,400 to 110,000 mg/kg in five of the six screening samples. The sixth sample, collected in the only unstained sample location (DA-FS-26), contained 11.4 mg/kg TPH.

PCB screening results indicate that all except one of the six samples from this AOC contained less than 5 ppm total PCBs. Greater than 10 ppm PCBs was detected in the sample collected at DA-FS-24. This sample also contained greater than 10 ppm DDT by the immunoassay method, as did samples collected from locations DA-FS-21, -23, and -25. Samples collected from locations DA-FS-22 and -26 contained less than 10 ppm DDT.

The laboratory results show that GRO and VOCs do not exceed the screening criteria. The confirmation sample collected at DA-FS-25, a small area (approximately 2 ft^2) covered with a black, tarry substance, contained benzo(a)anthracene above the RBC of 0.88 mg/kg and DRO at a concentration of 32,000 mg/kg. The chromatogram for this sample suggests that the source of the DRO may be old motor oil or grease. Sample location DA-FS-24 was also heavily stained, but the confirmation sample from this location did not contain DRO. It did, however, contain high concentrations of PCB-1248 and PCB-1260 (93,500 and 6,730,000 µg/kg, respectively). The concentrations of DRO and PCBs detected in these two samples very likely caused interference with the field screening method for DDT, since the laboratory results did not indicate the presence of any DDT compounds above the SQLs. No metals were detected above the UTLs in either of these confirmation samples.

Conclusions

Elevated concentrations of PCBs occur in the soil at one stained area at DSA No. 2. Staining at the other sampling locations appears to be the result of contamination by DRO, possibly from motor oil or grease. The results of the field screening suggest that DDT was released at the site, either as a result of routine application or

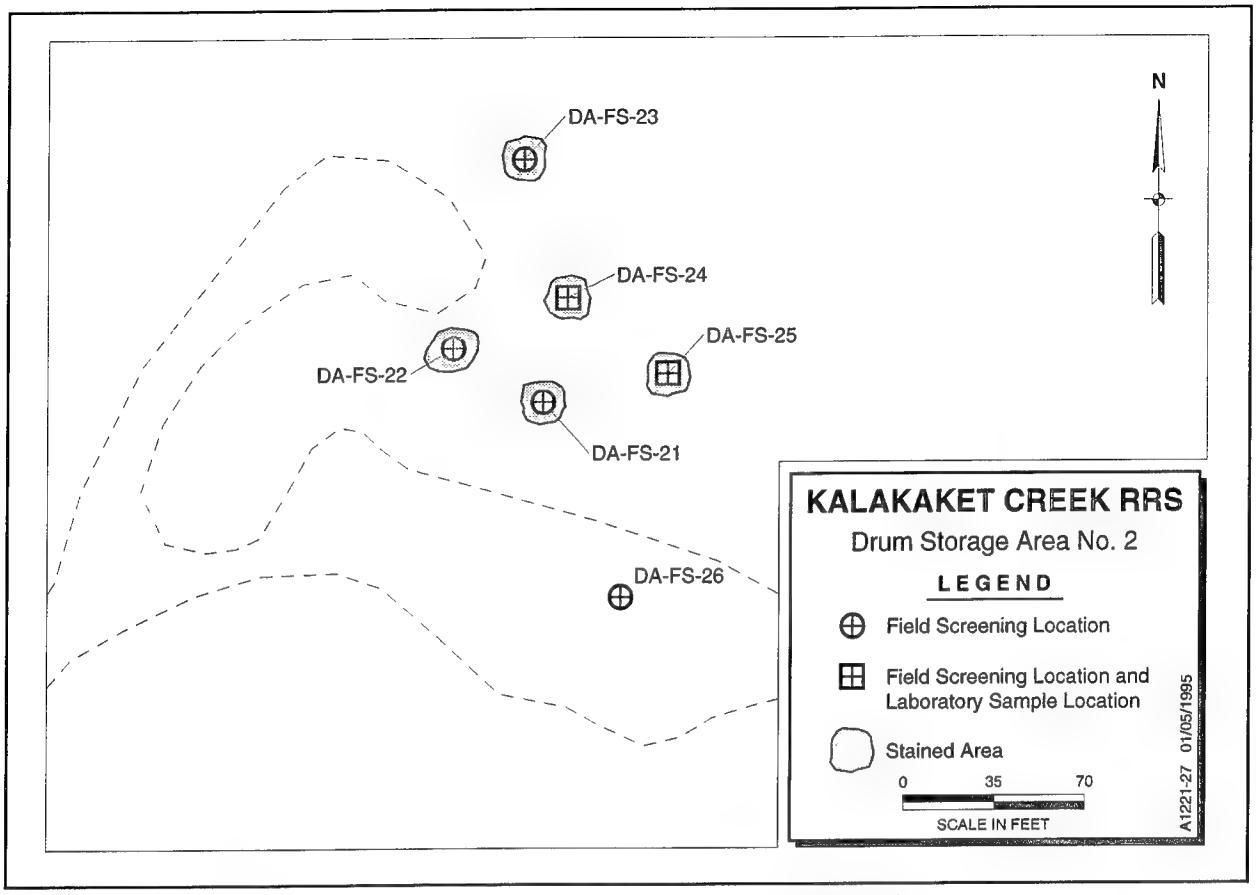


Figure 4-12. Sample Locations at DSA No. 2
(Stained Area Symbol Is Not Indicative of Scale)

Figure 4-13. Soil Staining at Sample Location
DA-FS-21 Drum Storage Area No. 2

Table 4-11
Field Screening and Analytical Data for the Drum Storage Area No. 2

Location ID	AK101	AK102	SW6010	SW8240	SW8270	SW8080 Pesticides and PCBs		Field IR Analysis		Immunoassay	
	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	All Analytes		Benzo(a)anthracene mg/kg [0.88][b]	PCB-1248 µg/kg [1000][c]	PCB-1260 µg/kg [1000][c]	AH mg/kg	TPH mg/kg	DDT mg/kg	PCB mg/kg
DA-FS-21	NA	NA	NA	NA	NA	NA	NA	1870	67,800	>10	<5
DA-FS-22	NA	NA	NA	NA	NA	NA	NA	1660	79,400	>1	<5
DA-FS-23	NA	NA	NA	NA	NA	NA	NA	8290	15,400	>10	<5
DA-FS-24	ND (1)	1j (4)	bsc	bsc	ND (1.85)	93,500 (1050)	6,730,000 (138,000)	619	32,100	>10	>10
DA-FS-25	1j (1)	32,000 (400)[d]	bsc	bsc	3.87f (2.13)	ND (97.4)	ND (320)	8580	110,000	>10	<5
DA-FS-26	NA	NA	NA	NA	NA	NA	NA	5	11.4	<0.2	<1

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
[b] EPARegion III RBC.
[c] EPA cleanup level.
[d] Chromatogram indicates the presence of weathered motor oil or grease within the diesel range.
NA = Not analyzed.
ND = Not detected.
j = Result is below standard quantitation limit.
bsc = Below screening criteria.
f = Interference or coelution suspected.
( ) = Sample quantitation limit.

during the handling and storage of drums. However, the results of the laboratory confirmation indicate that the field screening data are positively biased, and the presence of these compounds is unconfirmed in significant concentration.

Recommendations

The levels of PCBs in one of the stained areas at this AOC warrant a removal action. Following the removal of the PCB-contaminated soils and confirmation sampling, the site should be allowed to restore itself.

4.2.11 Drum Storage Area No. 3

DSA No. 3 is located on the southeastern portion of the runway. All drums have been removed, and the area is overgrown with alders and willows. PCB-contaminated soil was removed in 1984, but stained soil is still visible at several locations. Staining is of limited areal extent and appears to be weathered.

Investigation Activities

Sampling locations at DSA No. 3 are shown in Figure 4-14. Seven surface soil samples were collected and screened in the field for TPH, AH, DDT, and PCBs. On the basis of the screening data, two of the seven locations were resampled for confirmation analysis by the following methods:

- AK101—GRO;
- AK102—DRO;
- SW8240—VOCs;
- SW8270—SVOCs;
- SW8080—Pesticides and PCBs; and
- SW6010—Metals.

Results

Field screening and laboratory confirmation results are summarized in Table 4-12. TPH was detected in six of the seven screening samples, with concentrations ranging from 660 to 87,300 mg/kg. Three of the six samples were collected from areas of visible soil staining. A seventh sample, collected from a previous excavation pit (DA-FS-37), was screened only for PCBs.

PCBs were detected above 1 ppm in only one screening sample, collected at DA-FS-37 (<5 ppm). DDT was detected at levels greater than 10

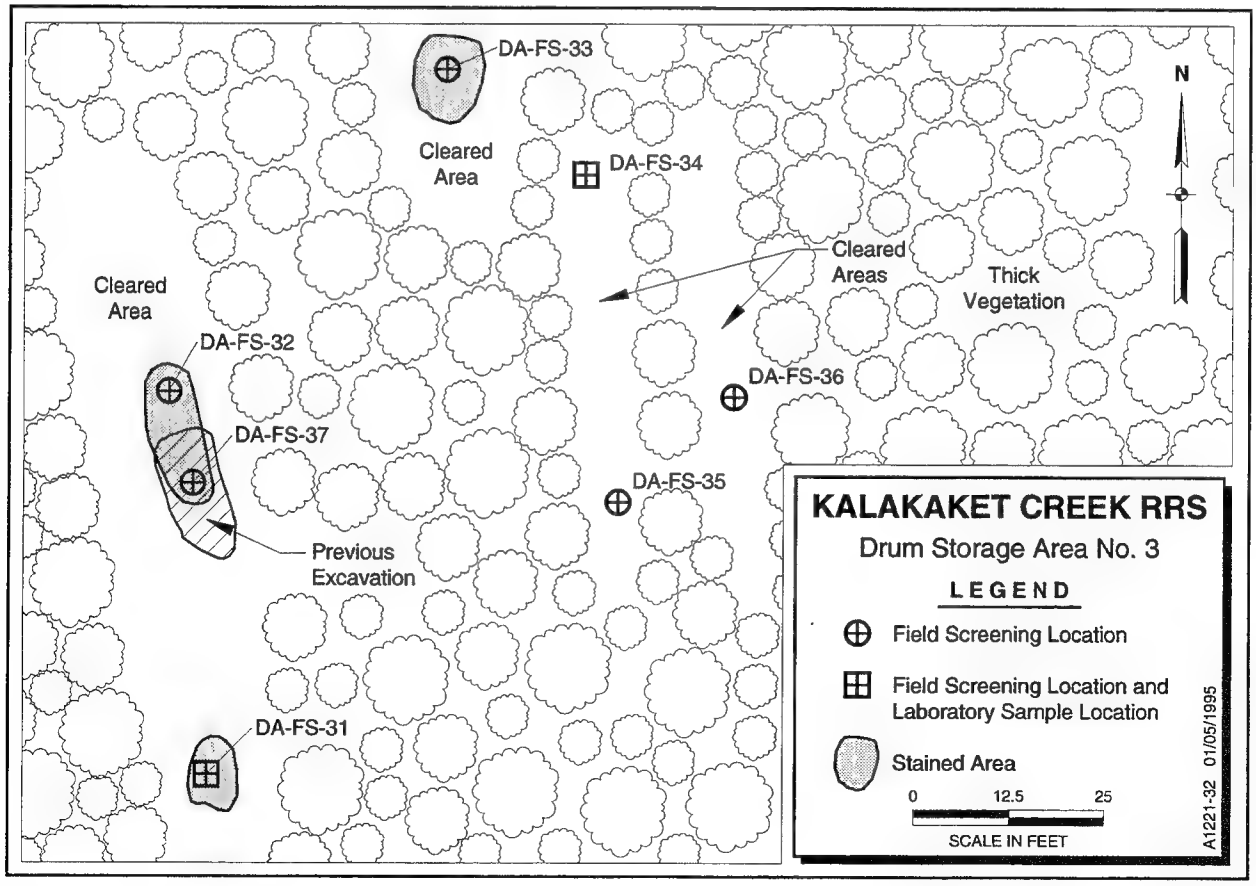


Figure 4-14. Sample Locations at DSA No. 3 (Stained Area Symbol Is Not Indicative of Scale)

Table 4-12
Field Screening and Analytical Data for the Drum Storage Area No. 3

Location ID	AK101	AK102	SW6010	SW8240	SW8270	SW8080 Pesticides and PCBs	Field IR Analysis		Immunoassay	
	GRO mg/kg [1000][a]	DRO mg/kg [1000][a]	All Analytes			4,4'- DDT µg/kg [1900][b]	AH mg/kg	TPH mg/kg	DDT mg/kg	PCB mg/kg
DA-FS-31	ND (1)	36,000 (400)	bsc	bsc	bsc	2480 (2.17)	ND	87,300	>10	ND
DA-FS-32	NA	NA	NA	NA	NA	NA	ND	27,800	>10	ND
DA-FS-33	NA	NA	NA	NA	NA	NA	3660	84,100	>10	ND
DA-FS-34	ND (1)	990 (40)	bsc	bsc	bsc	47 (12.1)	ND	1430	>1	ND
DA-FS-35	NA	NA	NA	NA	NA	NA	ND	34,200	>0.2	ND
DA-FS-36	NA	NA	NA	NA	NA	NA	40	660	>0.2	ND
DA-FS-37	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a]State of Alaska cleanup level.
[b]EPA Region III RBC.
NA = Not analyzed.
ND = Not detected.
bsc = Below screening criteria.
( ) = Sample quantitation limit.

ppm in screening samples from locations DA-FS-31, -32, and -33. Samples from all other locations contained less than 10 ppm total DDT.

The confirmation sample collected at location DA-FS-31, within a stained area, contained 36,000 mg/kg DRO and 2480 µg/kg 4,4'-DDT; both values exceed screening criteria. GRO were not detected above the SQL in this sample. The confirmation sample collected at location DA-FS-34, where there was no staining or odor, contained no analytes at concentrations above the screening criteria.

Conclusions

Vegetation is nearly restored at DSA No. 3. From the field screening data, it appears that soils containing greater than 50 ppm PCBs were successfully removed. Field screening detected only low levels of PCBs in soils from this AOC, indicating that remaining stained areas are the result of petroleum hydrocarbon releases. Field screening results also indicate the presence of DDT compounds, which may be the result of routine application of pesticides or accidental releases during storage and handling of drums.

Recommendations

Most of the staining at DSA No. 3 appears to be the result of limited spills or leaks of petroleum hydrocarbons in the diesel range. Isolated releases of POL and pesticides in the soil do not pose significant threat to human health or the environment. Since the areas of contamination appear to be isolated, and since there is little future threat to groundwater at this facility, it is recommended that no further actions be conducted at this AOC.

4.2.12 Temporary Garage

A temporary garage located south of the central portion of the runway was used to store vehicles and possibly for refueling activities in the winter. Currently, only the building foundation remains at the AOC. The concrete floor has no visible floor drains or oil staining. Some light maintenance at this facility may have resulted in the release of motor oil, fuels, solvents, or anti-freeze. Another small concrete building foundation is located 25 ft to the north of the Temporary Garage. This building was reportedly used to store fire equipment. No staining was visible on the building floor or surrounding soils.

Investigation Activities

Eight surface soil samples were collected from the areas around the former doors of the facility, as shown in Figure 4-15. These samples were analyzed in the field using an IR TPH analyzer. One of the locations was resampled for laboratory confirmation by methods AK101, AK102, and SW6010.

Results

Table 4-13 shows the results of the field and laboratory analyses for this AOC. The results of the field screening showed low concentrations of both TPH and AH in all eight samples collected around the Temporary Garage and fir equipment storage building. TPH concentrations ranged from 9.62 to 64.8 mg/kg.

The screening sample collected at location TG-FS-06 contained the highest concentration of TPH; this location was resampled for confirmation analysis. GRO were not detected above the SQL in the confirmation sample; DRO were detected at only 7 mg/kg. All metals detected in the sample were less than the UTLs calculated for Kalakaket Creek RRS.

Conclusions

There is no evidence of staining on the facility floor or surrounding soils. Concentrations of fuel constituents and metals in surface soils do not indicate that any releases have occurred as a result of activities at the Temporary Garage.

Recommendations

The Temporary Garage AOC is recommended for NFRAP status.

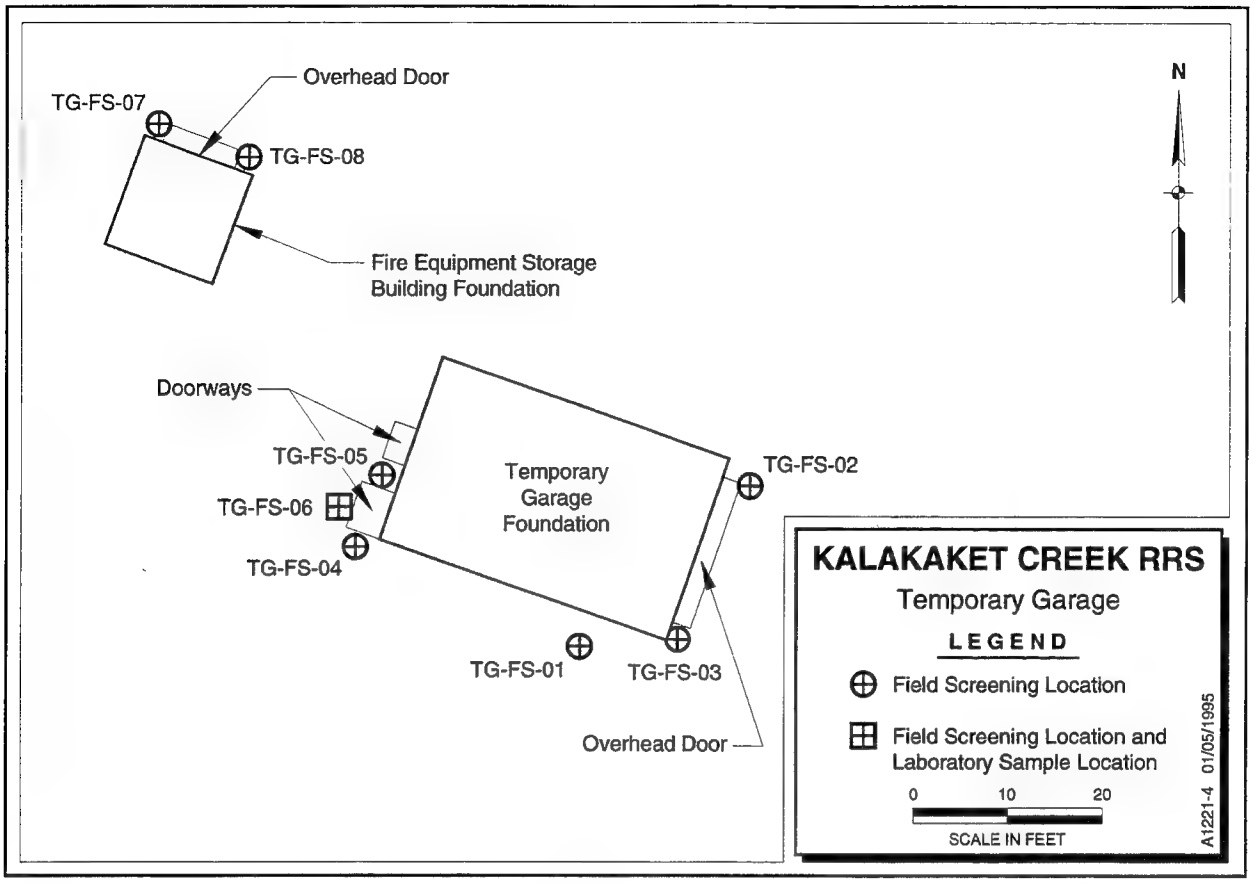


Figure 4-15. Sample Locations at the Temporary Garage AOC

Table 4-13
Field Screening and Analytical Data for the Temporary Garage AOC

	AK101	AK102	SW6010	Field IR Analysis	
Location ID	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	All Analytes	AH mg/kg	TPH mg/kg
TG-FS-01	NA	NA	NA	2.99	18.9
TG-FS-02	NA	NA	NA	2.99	38.8
TG-FS-03	NA	NA	NA	3.96	49.5
TG-FS-04	NA	NA	NA	4.81	9.62
TG-FS-05	NA	NA	NA	1.92	21.7
TG-FS-06	ND (5)	7 (4)	bsc	2.86	64.8
TG-FS-07	NA	NA	NA	6.64	22.7
TG-FS-08	NA	NA	NA	4.95	21.8

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
NA = Not analyzed.
ND = Not detected.
bsc = Below screening criteria.
( ) = Sample quantitation limit.

4.2.13 Temporary Diesel Tanks

A 1000-barrel aboveground diesel storage tank is located south of the western portion of the runway. The tank was filled by off-loading planes via a standpipe near the runway. Fuel was transported by gravity to the tank, and was later pumped into trucks that ferried the diesel to the 3000-barrel tanks at top camp. The tank was periodically dewatered at a valve and standpipe located south of the tank. Diesel fuel may have been released to the ground during this process. Vegetation near the standpipe is sparse, as it is in many areas bordering the runway, but near the diesel tank and dewatering valve grasses and willows are very thick. A small area of standing water was present south of the tank at the time of the SI.

Investigation Activities

Six surface soil samples were collected in the field and screened for petroleum hydrocarbons using the IR TPH method. Two locations were resampled for confirmation analysis of GRO and DRO. Field screening and laboratory sample locations are shown in Figure 4-12.

Results

Table 4-16 summarizes the field screening and confirmation results. TPH concentrations ranged from 8.0 to 297 mg/kg, with the highest concentration detected in the sample collected near the standpipe (TD-FS-05). The second highest concentration of TPH (44.9 ppm) was detected in the sample collected near the tank dewatering point (TD-FS-06). These two samples were submitted for laboratory confirmation.

The laboratory results for the confirmation samples show that GRO were not present above the SQL and DRO did not approach the State of Alaska cleanup criteria for a Level D location.

Conclusions

The results of the field screening and laboratory data show that any fuel releases at this AOC were small. The petroleum hydrocarbons remaining in the soil do not pose a risk to human health or the environment.

Recommendations

The Temporary Diesel Tank AOC is recommended for NFRAP status.

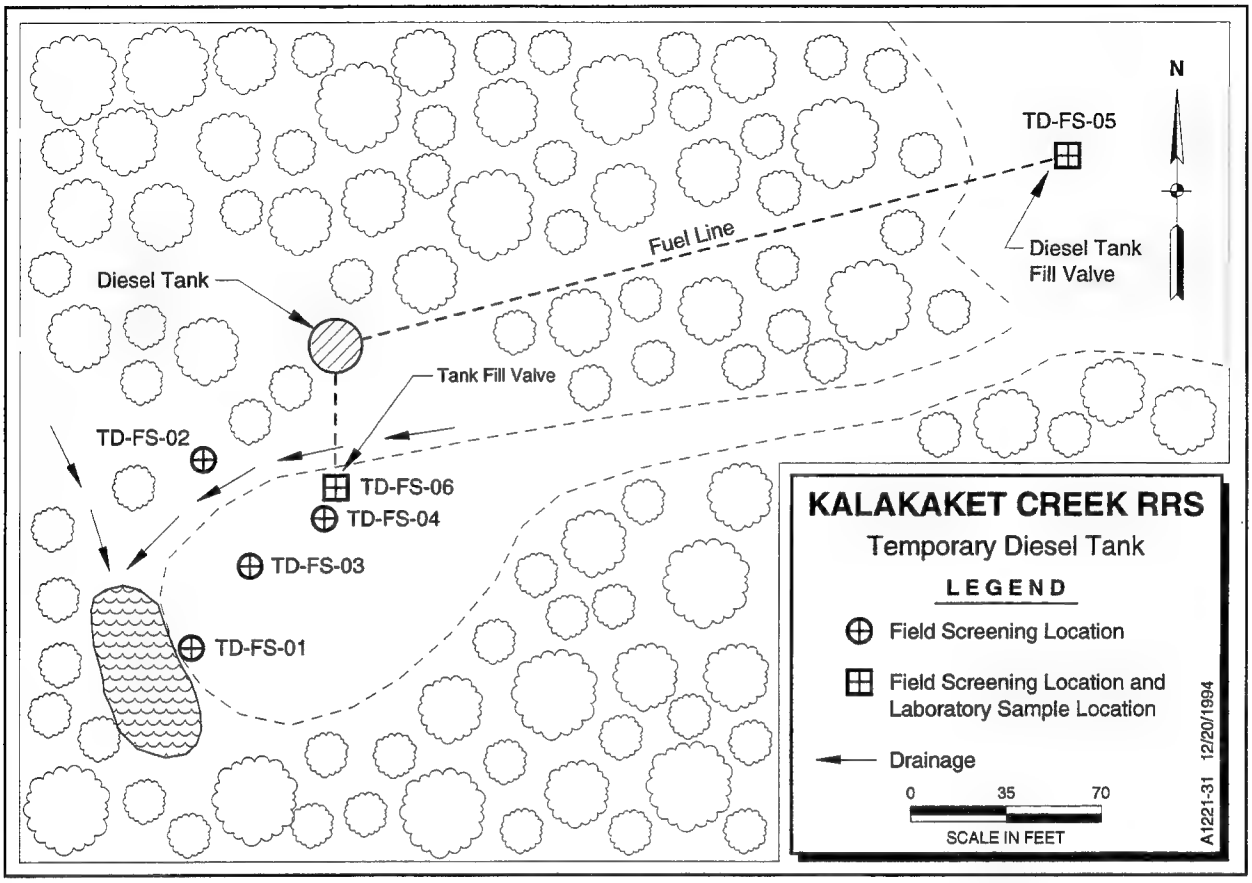


Figure 4-16. Sample Locations at the Temporary Diesel Tank AOC

Table 4-14
Field Screening and Analytical Data for the Temporary Diesel Tank AOC

Location ID	AK101	AK102	Field IR Analysis	
	GRO mg/kg [1000][a]	DRO mg/kg [2000][a]	AH mg/kg	TPH mg/kg
TD-FS-01	NA	NA	1.94	10.7
TD-FS-02	NA	NA	1.95	14.6
TD-FS-03	NA	NA	2	8
TD-FS-04	NA	NA	1.98	23.8
TD-FS-05	ND (1)	270 (20)	ND	297
TD-FS-06	3j (5)	23 (4)	1.95	44.9

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
NA = Not analyzed.
ND = Not detected.
j = Result is below standard quantitation limit.
( ) = Sample quantitation limit.

4.2.14 Water Pump House

Potable water was supplied to top camp by pumping surface water and shallow groundwater from an unnamed tributary of Kala Creek located approximately 1 mile east of the site and several hundred feet lower. Two diesel-powered pumps were used to fill a 216,000- and 110,000-gal. storage tank that provided enough water to last through the long winter. Currently, an empty tank rack and valve stand is located on the north side of the pump house, and two partially full oil drums are located at the southeast corner of the building. Oil staining is visible on the floor of the facility, and a maintenance log outlining the dates of operation and oil changes was found on the wall inside. Oil staining is also visible outside the doorway of the building and on the northeast corner of the building. Figure 4-17 shows the stained area at the corner of the building. The native substrate at this AOC consists mainly of stream-rounded cobbles, and the surrounding vegetation is chiefly willows. The location of this AOC near a stream results in State of Alaska Level C score.

Investigation Activities

Four samples were collected around the Water Pump House for field screening using the IR analyzer. One of the four samples was submitted to the laboratory for DRO and GRO analysis. Figure 4-18 shows the field screening and laboratory sample locations.

Results

The field screening and laboratory confirmation results are given in Table 4-15. All four field screening samples contained TPH in concentrations ranging from 296 to 54,900 ppm. The highest concentration was detected in the sample collected from the stained area at the corner of the building (WP-FS-01). The lowest concentration of TPH was detected in the sample from near the valve associated with the empty tank rack (WP-FS-02).

The screening sample collected at location WP-FS-01, which had the highest concentrations of TPH and AH (54,900 and 485 mg/kg, respectively), was submitted for confirmation analysis. GRO were not detected above the SQL in this sample, as was expected, since site evidence suggests that diesel fuel and lubricating oil (i.e., larger hydrocarbon chain compounds) are the only potential contaminants at this AOC. DRO were detected at a concentration of 7100 mg/kg, in excess of the 1000 mg/kg screening criterion for Level C areas. The chromatogram indicates that some type of oil may account for some of the DRO detected.

Conclusions

The routine operation and maintenance of the pump house resulted in the limited release of diesel and/or lubricating oil to the surrounding soils.

Recommendations

Because of the proximity of this AOC to a waterway, the stained soils should be excavated and removed, followed by confirmation sampling. The partially full drums of oil should also be removed.

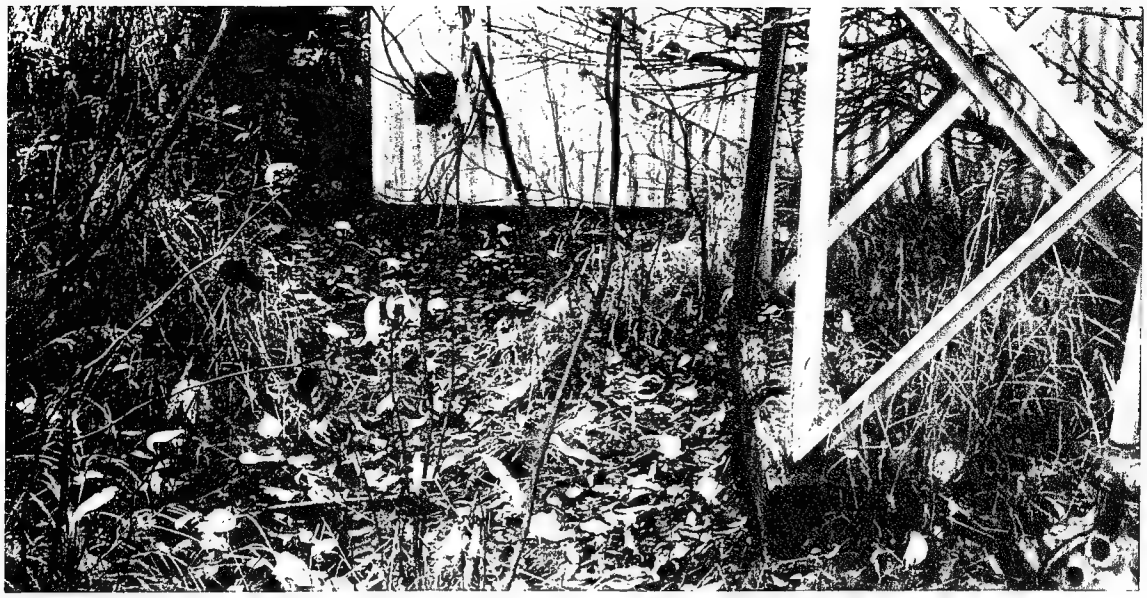


Figure 4-17. An Area of Soil Staining at the Water Pump House AOC (WP-FS-01)

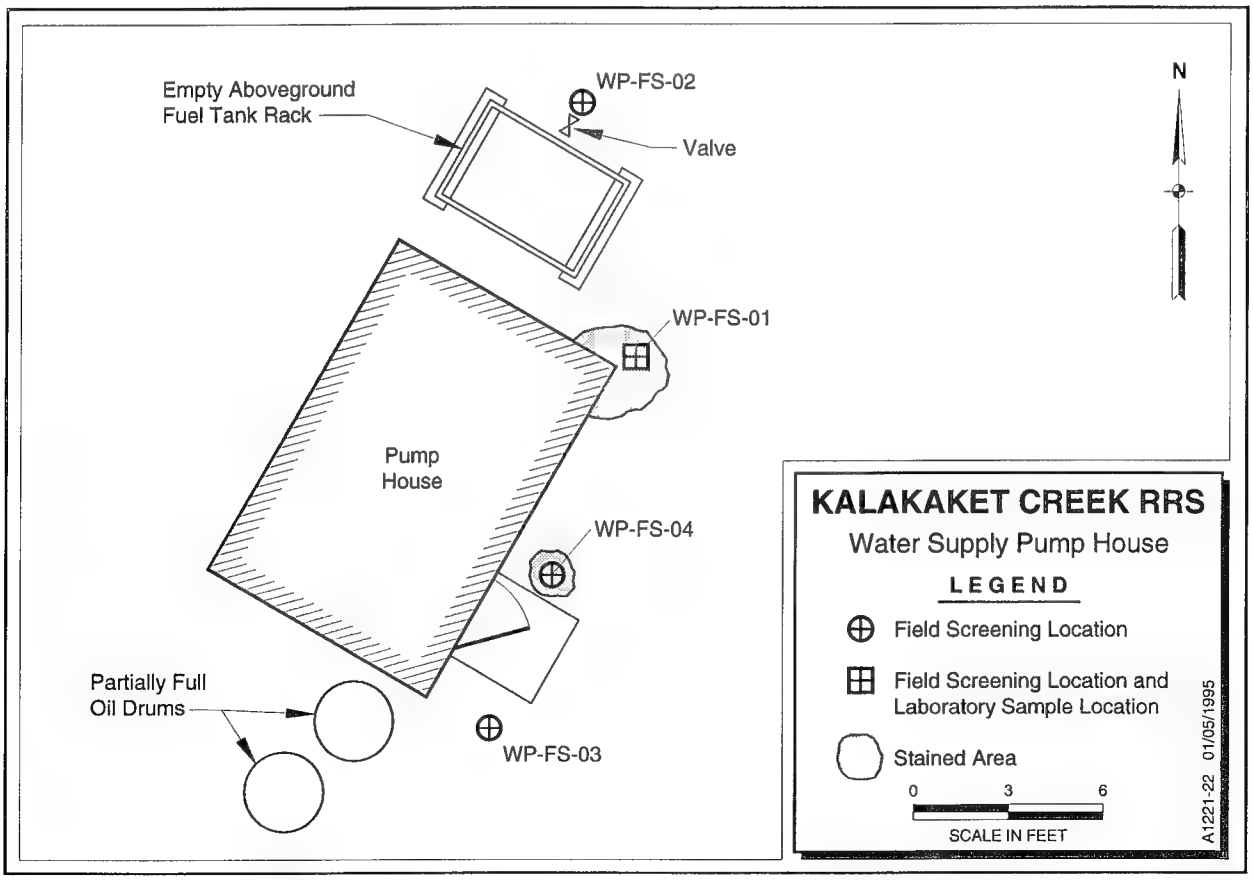


Figure 4-18. Sample Locations at the Water Pump House AOC (Stained Area Symbol Is Not Indicative of Scale)

Table 4-15
Field Screening and Analytical Data for the Water Pump House AOC

Location ID	AK101	AK102	Field IR Analysis	
	GRO mg/kg [500][a]	DRO mg/kg [1000][a]	AH mg/kg	TPH mg/kg
WP-FS-01	4j (1)	7100 [b] (400)	485	54,900
WP-FS-02	NA	NA	ND	296
WP-FS-03	NA	NA	102	1940
WP-FS-04	NA	NA	ND	3431

Shaded results indicate those that exceed the screening criteria.
[ ] = Screening criteria.
[a] State of Alaska cleanup level.
[b] Chromatogram indicates the presence of some type of oil within the diesel range.
NA = Not analyzed.
ND = Not detected.
j = Result is below standard quantitation limit.
( ) = Sample quantitation limit.

4.2.15 Remote Drum Cache

During the personnel interviews, it was revealed that empty or partially empty 55-gal. drums were routinely rolled off a ridge into a drainage to the north of top camp (D. Patrick, personal communication, August 1994). This AOC was not located during the August site visit. Observation from the air during the daily flights to the work site, followed by ground reconnaissance, located the drum cache toward the end of the site investigation in September.

Investigation Activities

On the basis of observations from the air, a ground reconnaissance was conducted in September 1994 to locate the area of reported drum disposal. The drum cache was located part of the way down a steep slope to the north of the RRS facility (see Figure 3-1). On top of the ridge from which the drums appear to have been rolled is a road that leads to several gravel borrow pits north of top camp. The drum cache is directly downslope, on the east side of the ridge, from a larger red tank located in one of the borrow pits. This tank serves as a convenient marker from the air as well as the ground.

After locating the drum cache, an approximate count of the drums and their contents was conducted. Photographs were taken to document the conditions and labeling of the drums (USAF, 1994d). No samples were collected at this AOC.

Results

Approximately 60 drums were located during the site investigation. These drums were labeled as combat gas, antifreeze (ethylene glycol), lubricating oil (gear, subzero), automobile gasoline, and SAE 30 lubricating oil drums. Several of the drums had "Kalakaket Creek" stenciled on them. Some of the drums were open and appeared to have roofing tar in them. The ground was heavily stained in some areas and showed evidence of disturbance (likely as a result of a large animal digging in the area). Figure 4-19 shows a photograph of one of the stained areas.

Conclusions

The disposal of empty and partially full drums in this area has introduced contaminants to the surface soils, as evidenced by the staining. The proximity of the drum cache to a drainage poses a threat to surface water quality. Animals are attracted to ethylene glycol, and it is possible that bears have been digging because of the presence of this or other contaminants in the soils. Signs of digging by animals indicate that this AOC may pose a risk to wildlife.

Recommendations

The drums should be removed from this AOC to restore the area and prevent further releases. Also, the stained soil should be excavated and removed, followed by confirmation sampling. Following the removal action, the drum cache should require no further action.

Figure 4-19. Soil Staining at the Remote Drum Cache

4.2.16 Landfill

No official record of a landfill exists for Kalakaket Creek RRS. It is reported that the soils are very thin and excavation to appreciable depth is difficult to impossible. Unsuccessful attempts to bury drums was the driving factor that resulted in the disposal of drums at the Remote Drum Cache (D. Patrick, personal communication, 1994). Review of the equipment on site during facility operation suggest that only road graders and bulldozers were available for excavation activities. However, there is evidence of disturbed soil and alteration of vegetation in the vicinity of Drum Storage Area No. 2, as shown on the high-altitude IR aerial photograph taken July 1983. Surface inspection of the area revealed evidence of waste disposal, including cans, bottles, building material, and other solid waste. The surface appears to be graded smooth and is covered by gravelly sand and is sparsely vegetated by native grasses. It is difficult to determine if the surface scar reflects a true landfill or an unsuccessful attempt to excavate the site. The area surrounding the probable landfill is covered by native tundra.

Past waste handling practices, as described by on-site personnel, did not produce significant amounts of solid waste at the facility. Excavation of the thin soils was difficult and drums were either accumulated above ground in two drum storage areas or rolled off the ridge north of the facility. Liquid and some solid waste may have been treated on site by incineration in the furnace located in the Vehicle Maintenance Garage. Since no subsurface sampling or geophysical survey has been conducted at this area, the presence of the landfill cannot be confirmed. However, according to information about waste disposal practices during station operation, it is likely that the landfill area does not contain significant hazardous waste constituents.

Currently there is no evidence that suggests that the area has been used for the disposal of hazardous or toxic materials. There is little threat to groundwater and the potential for both pathways and receptors in the area are low. Therefore, this area is recommended for NFRAP status.

Section 5
REFERENCES

Alaska, State of. *Guidance for Using Alaska Cleanup Matrix for Non-UST Soil.* 1991a.

Alaska, State of. *Storage, Remediation, and Disposal of Non-UST Petroleum Contaminated Soils.* 1991b.

Department of Defense. *Relative Risk Site Evaluation Primer.* Summer 1994 (Interim edition).

Donnelly, John. Personal communication with Todd Council, Radian Corporation. 28 July 1994.

Patrick, Danny. Personal communication with Todd Council, Radian Corporation. 1 August 1994.

U.S. Air Force. *Kalakaket Creek Civil Site Plan.* (Drawing No. AMC-399-22-1-1.) 1956 (modified 1957).

U.S. Air Force. *Installation Restoration Program Preliminary Assessment, Kalakaket Creek Radio Relay Station, Alaska.* 1989.

U.S. Air Force. *U.S. Air Force Environmental Restoration Program NFRAP Guide: Making, Documenting, and Evaluating No Further Response Action Planned Decisions.* 1993.

U.S. Air Force. *Addendum to the Sampling and Analysis Plan, Galena Airport and Kalakaket Creek Radio Relay Station, Alaska.* 1994a.

U.S. Air Force. *Addendum to the Work Plan—Galena Airport and Kalakaket Creek Radio Relay Station, Alaska.* 1994b.

U.S. Air Force. *Health and Safety Plan, Kalakaket Creek Radio Relay Station, Alaska.* 1994c.

U.S. Air Force. *Photo Notebook, Kalakaket Creek Radio Relay Station, Alaska.* 1994d.

U.S. Air Force. *Preliminary Assessment, Kalakaket Creek Radio Relay Station, Alaska.* 1994e.

U.S. Environmental Protection Agency. *Guidance on Remedial Actions for Superfund Sites with PCB Contamination.* Office of Emergency and Remedial Response, EPA/540/G-90/007. August 1990.

APPENDIX A

Cleanup Documentation

Finding of No Significant Contamination

KALAKAKET CREEK RADIO RELAY SITE 12 SEP 1985

This excess real property contains no known contamination as specified by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, the Toxic Substance Control Act of 1976, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, the implementing Environmental Protection Agency, Federal Regulations (40 CFR 261, 262, 263 and 761), and the Federal Property Management Regulations (41 CFR 101).

Bill E. Slone

BILL E. SLONE, WS-13
Chief, Operating Engineers

Description of Site:

The parcel of land to be excessed is in S½, Sec. 22, T.12S., R.10E., K.R.M. Nulato Quad B2.

The area to be excessed is more specifically described in Tab A of the Declaration of Excess.

PCB CLEARANCE CERTIFICATE

KALAKAKET CREEK RADIO RELAY SITE 18 SEP 1985

This is to certify that a records check and an on-site inspection indicate that this property has been cleared of PCB materials or equipment in accordance with applicable State and Federal laws.

Bill E. Slone

BILL E. SLONE, WS-13
Chief, Operating Engineers

Description of Site:

The parcel of land to be excessed is in S½, Sec. 22, T.12S., R.10E., K.R.M. Nulato Quad B2.

The area to be excessed is more specifically described in TAB A of the Declaration of Excess.

APPENDIX B

Laboratory Analytical Data for the Kalakaket Creek RRS PA/SI

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID											
	AD			AD			DA			DA		
	AD-FS-01			AD-FS-05			DA-FS-03			DA-FS-18		
	KAL94-AD-SS-01			KAL94-AD-SS-02			KAL94-DA-SS-01			KAL94-DA-SS-02		
	0 - 0.5			0 - 0.5			0 - 0.5			0 - 0.5		
AK101 - Gasoline Range Organics (mg/kg)												
Gasoline Range Organics	0 J	(1)	[1]	31	(1)	[1]	0 J	(1)	[1]	0 J	(1)	[1]
AK102 - Diesel Range Organics (mg/kg)												
Diesel Range Organics	120	(4)	[1]	8400	(200)	[50]	7200	(400)	[100]	6	(4)	[1]
SW8080 - Organochlorine Pesticides and PCBs (ug/kg)												
4,4'-DDD	NA			NA			40.6	(4.22)	[10]	2.87	(0.403)	[1]
4,4'-DDE	NA			NA			ND	(4.39)	[10]	0.326 KJ	(0.419)	[1]
4,4'-DDT	NA			NA			14.9	(10.8)	[10]	17.6	(1.03)	[1]
Aldrin	NA			NA			ND	(3.26)	[10]	0.0895 PJ	(0.311)	[1]
Chlordane	NA			NA			ND	(32.3)	[10]	ND	(3.08)	[1]
Dieldrin	NA			NA			ND	(2.48)	[10]	0.154 KJ	(0.345)	[1]
Endosulfan I	NA			NA			ND	(3.96)	[10]	ND	(0.377)	[1]
Endosulfan II	NA			NA			ND	(5.35)	[10]	0.113 PJ	(0.51)	[1]
Endosulfan Sulfate	NA			NA			ND	(8.4)	[10]	ND	(0.801)	[1]
Endrin	NA			NA			28.5	(13.4)	[10]	0.322 PJ	(1.28)	[1]
Endrin Aldehyde	NA			NA			52.3	(12.2)	[10]	0.205 KJ	(1.17)	[1]
Heptachlor	NA			NA			ND	(2.66)	[10]	ND	(0.254)	[1]
Heptachlor epoxide	NA			NA			ND	(2.63)	[10]	ND	(0.396)	[1]
Methoxychlor	NA			NA			ND	(74.4)	[10]	0.869 KJ	(7.1)	[1]
PCB-1016	NA			NA			ND	(62.4)	[10]	ND	(5.95)	[1]
PCB-1221	NA			NA			ND	(107)	[10]	ND	(10.2)	[1]
PCB-1232	NA			NA			ND	(17)	[10]	ND	(1.62)	[1]
PCB-1242	NA			NA			ND	(27)	[10]	ND	(2.57)	[1]
PCB-1248	NA			NA			ND	(20.1)	[10]	ND	(1.91)	[1]
PCB-1254	NA			NA			ND	(19.8)	[10]	ND	(1.89)	[1]
PCB-1260	NA			NA			ND	(66)	[10]	ND	(6.29)	[1]
Toxaphene	NA			NA			ND	(131)	[10]	ND	(12.5)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: AD LOCATION ID: AD-FS-01 SAMPLE ID: KAL94-AD-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5	SITE ID: AD LOCATION ID: AD-FS-05 SAMPLE ID: KAL94-AD-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5	SITE ID: DA LOCATION ID: DA-FS-03 SAMPLE ID: KAL94-DA-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: DA LOCATION ID: DA-FS-18 SAMPLE ID: KAL94-DA-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			
SW8080 - Organochlorine Pesticides and PCBs, cont. (ug/kg)										
alpha-BHC	NA	NA	11.8		(2.09)	[10]	ND		(0.266)	[1]
beta-BHC	NA	NA	ND		(7.51)	[10]	0.0273	KJ	(0.473)	[1]
delta-BHC	NA	NA	ND		(1.98)	[10]	1.86		(0.189)	[1]
gamma-BHC	NA	NA	ND		(5.7)	[10]	0.59		(0.543)	[1]
SW8240 - Volatile Organics (ug/kg)										
1,1,1-Trichloroethane	NA	NA	ND		(1.82)	[1]	ND		(1.75)	[1]
1,1,2,2-Tetrachloroethane	NA	NA	ND	Y	(4.94)	[1]	ND		(4.75)	[1]
1,1,2-Trichloroethane	NA	NA	ND	Y	(1.49)	[1]	ND		(1.43)	[1]
1,1-Dichloroethane	NA	NA	ND		(1.67)	[1]	ND		(1.61)	[1]
1,1-Dichloroethene	NA	NA	ND		(2.5)	[1]	ND		(2.4)	[1]
1,2-Dichloroethane	NA	NA	ND		(1.69)	[1]	ND		(1.63)	[1]
1,2-Dichloropropane	NA	NA	ND	Y	(2.56)	[1]	ND		(2.46)	[1]
2-Chloroethyl vinyl ether	NA	NA	ND	Y	(2.79)	[1]	ND		(2.68)	[1]
2-Hexanone	NA	NA	ND	Y	(0.934)	[1]	ND		(0.898)	[1]
4-Methyl-2-Pentanone(MIBK)	NA	NA	ND	Y	(0.891)	[1]	ND		(0.857)	[1]
Acetone	NA	NA	8.31	B	(1.46)	[1]	9.39	B	(1.41)	[1]
Benzene	NA	NA	ND	Y	(1.68)	[1]	ND		(1.62)	[1]
Bromodichloromethane	NA	NA	ND	Y	(1.59)	[1]	ND		(1.53)	[1]
Bromomethane	NA	NA	ND		(1.96)	[1]	ND		(1.88)	[1]
Carbon disulfide	NA	NA	ND		(2.52)	[1]	ND		(2.42)	[1]
Carbon tetrachloride	NA	NA	ND	Y	(1.95)	[1]	ND		(1.87)	[1]
Chlorobenzene	NA	NA	ND	Y	(4.53)	[1]	ND		(4.35)	[1]
Chloroethane	NA	NA	ND		(1.99)	[1]	ND		(1.92)	[1]
Chloroform	NA	NA	ND		(2.04)	[1]	ND		(1.96)	[1]
Chloromethane	NA	NA	ND		(2.37)	[1]	ND		(2.28)	[1]
Dibromochloromethane	NA	NA	ND	Y	(1.78)	[1]	ND		(1.72)	[1]
Ethyl benzene	NA	NA	ND	Y	(1.61)	[1]	ND		(1.55)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)											
	AD AD-FS-01 KAL94-AD-SS-01 0 - 0.5			AD AD-FS-05 KAL94-AD-SS-02 0 - 0.5			DA DA-FS-03 KAL94-DA-SS-01 0 - 0.5				DA DA-FS-18 KAL94-DA-SS-02 0 - 0.5			
SW8240 - Volatile Organics, cont. (ug/kg)														
Methyl ethyl ketone	NA			NA			ND		(1.49)	[1]	ND		(1.43)	[1]
Methylene Chloride	NA			NA			3.36	B	(2.54)	[1]	ND		(2.45)	[1]
Styrene	NA			NA			ND	Y	(1.58)	[1]	ND		(1.52)	[1]
Tetrachloroethene	NA			NA			ND	Y	(4.63)	[1]	ND		(4.45)	[1]
Toluene	NA			NA			ND	Y	(1.66)	[1]	ND		(1.59)	[1]
Tribromomethane(Bromoform)	NA			NA			ND	Y	(1.47)	[1]	ND		(1.42)	[1]
Trichloroethene	NA			NA			ND	Y	(4.73)	[1]	ND		(4.55)	[1]
Vinyl Chloride	NA			NA			ND		(2.02)	[1]	ND		(1.94)	[1]
Vinyl acetate	NA			NA			ND		(10.7)	[1]	ND		(10.3)	[1]
Xylene (total)	NA			NA			ND	Y	(3.55)	[1]	ND		(3.41)	[1]
cis-1,2-Dichloroethene	NA			NA			ND		(1.84)	[1]	ND		(1.77)	[1]
cis-1,3-Dichloropropene	NA			NA			ND	Y	(1.57)	[1]	ND		(1.51)	[1]
trans-1,2-Dichloroethene	NA			NA			ND		(2.27)	[1]	ND		(2.18)	[1]
trans-1,3-Dichloropropene	NA			NA			ND	Y	(1.69)	[1]	ND		(1.63)	[1]
SW8270 - Semivolatile Organics (ug/g)														
1,2,4-Trichlorobenzene	NA			NA			ND		(0.192)	[1]	ND		(0.0071)	[1]
1,2-Dichlorobenzene	NA			NA			ND		(0.27)	[1]	ND		(0.0237)	[1]
1,3-Dichlorobenzene	NA			NA			ND		(0.252)	[1]	ND		(0.0263)	[1]
1,4-Dichlorobenzene	NA			NA			ND		(0.428)	[1]	ND		(0.0262)	[1]
2,4,5-Trichlorophenol	NA			NA			ND		(0.362)	[1]	ND		(0.0217)	[1]
2,4,6-Trichlorophenol	NA			NA			ND		(0.333)	[1]	ND		(0.0179)	[1]
2,4-Dichlorophenol	NA			NA			ND		(0.277)	[1]	ND		(0.0215)	[1]
2,4-Dimethylphenol	NA			NA			ND		(1.11)	[1]	ND		(0.047)	[1]
2,4-Dinitrophenol	NA			NA			ND		(2.36)	[1]	ND		(0.0958)	[1]
2,4-Dinitrotoluene	NA			NA			ND		(0.403)	[1]	ND		(0.0284)	[1]
2,6-Dinitrotoluene	NA			NA			ND		(0.342)	[1]	ND		(0.0388)	[1]
2-Chloronaphthalene	NA			NA			ND		(0.552)	[1]	ND		(0.0333)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: AD LOCATION ID: AD-FS-01 SAMPLE ID: KAL94-AD-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5	SITE ID: AD LOCATION ID: AD-FS-05 SAMPLE ID: KAL94-AD-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5	SITE ID: DA LOCATION ID: DA-FS-03 SAMPLE ID: KAL94-DA-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			SITE ID: DA LOCATION ID: DA-FS-18 SAMPLE ID: KAL94-DA-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5		
SW8270 - Semivolatile Organics, cont. (ug/g)								
2-Chlorophenol	NA	NA	ND		(0.399)	[1]	ND	(0.0121) [1]
2-Methylnaphthalene	NA	NA	ND		(0.474)	[1]	ND	(0.0224) [1]
2-Methylphenol	NA	NA	ND		(1.01)	[1]	ND	(0.0292) [1]
2-Nitroaniline	NA	NA	ND		(0.372)	[1]	ND	(0.0296) [1]
2-Nitrophenol	NA	NA	ND		(0.443)	[1]	ND	(0.0157) [1]
3,3'-Dichlorobenzidine	NA	NA	ND	V	(0.927)	[1]	ND	(0.0403) [1]
3-Nitroaniline	NA	NA	ND		(0.447)	[1]	ND	(0.0119) [1]
4,6-Dinitro-2-methylphenol	NA	NA	ND		(0.669)	[1]	ND	(0.027) [1]
4-Bromophenyl phenyl ether	NA	NA	ND		(0.479)	[1]	ND	(0.0226) [1]
4-Chloro-3-methylphenol	NA	NA	ND		(0.296)	[1]	ND	(0.0169) [1]
4-Chlorophenyl phenyl ether	NA	NA	ND		(0.666)	[1]	ND	(0.0271) [1]
4-Methylphenol/3-Methylphenol	NA	NA	ND		(0.918)	[1]	ND	(0.0459) [1]
4-Nitroaniline	NA	NA	ND		(0.45)	[1]	ND	(0.0222) [1]
4-Nitrophenol	NA	NA	ND		(0.402)	[1]	ND	(0.0233) [1]
Acenaphthene	NA	NA	ND		(0.363)	[1]	ND	(0.0178) [1]
Acenaphthylene	NA	NA	ND		(0.672)	[1]	ND	(0.0243) [1]
Anthracene	NA	NA	0.307	J	(0.45)	[1]	ND	(0.0199) [1]
Benzo(a)anthracene	NA	NA	ND	V	(0.354)	[1]	ND	(0.0129) [1]
Benzo(a)pyrene	NA	NA	ND		(0.552)	[1]	ND	(0.02) [1]
Benzo(b)fluoranthene	NA	NA	ND		(0.867)	[1]	ND	(0.0355) [1]
Benzo(g,h,i)perylene	NA	NA	ND		(0.384)	[1]	ND	(0.0205) [1]
Benzo(k)fluoranthene	NA	NA	ND		(0.582)	[1]	ND	(0.0303) [1]
Benzoic acid	NA	NA	ND		(5.32)	[1]	ND	(0.111) [1]
Benzyl alcohol	NA	NA	ND		(0.407)	[1]	ND	(0.0533) [1]
Butylbenzylphthalate	NA	NA	ND	V	(0.466)	[1]	ND	(0.0278) [1]
Chrysene	NA	NA	ND	V	(0.242)	[1]	ND	(0.0216) [1]
Di-n-octylphthalate	NA	NA	ND		(0.39)	[1]	ND	(0.0215) [1]
Dibenz(a,h)anthracene	NA	NA	ND		(0.429)	[1]	ND	(0.0253) [1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)											
	AD AD-FS-01 KAL94-AD-SS-01 0 - 0.5			AD AD-FS-05 KAL94-AD-SS-02 0 - 0.5			DA DA-FS-03 KAL94-DA-SS-01 0 - 0.5			DA DA-FS-18 KAL94-DA-SS-02 0 - 0.5		
SW8270 - Semivolatile Organics, cont. (ug/g)												
Dibenzofuran	NA			NA			ND	(0.318)	[1]	ND	(0.0145)	[1]
Dibutylphthalate	NA			NA			ND	(0.387)	[1]	ND	(0.0115)	[1]
Diethylphthalate	NA			NA			ND	(0.278)	[1]	ND	(0.0137)	[1]
Dimethylphthalate	NA			NA			ND	(0.285)	[1]	ND	(0.0174)	[1]
Diphenylamine	NA			NA			ND	(0.657)	[1]	ND	(0.0283)	[1]
Fluoranthene	NA			NA			0.944	(0.149)	[1]	ND	(0.0157)	[1]
Fluorene	NA			NA			ND	(0.251)	[1]	ND	(0.0128)	[1]
Hexachlorobenzene	NA			NA			ND	(0.418)	[1]	ND	(0.0195)	[1]
Hexachlorobutadiene	NA			NA			ND	(0.214)	[1]	ND	(0.0243)	[1]
Hexachlorocyclopentadiene	NA			NA			ND	(1.45)	[1]	ND	(0.0607)	[1]
Hexachloroethane	NA			NA			ND	(0.217)	[1]	ND	(0.037)	[1]
Indeno(1,2,3-cd)pyrene	NA			NA			ND	(0.458)	[1]	ND	(0.0178)	[1]
Isophorone	NA			NA			ND	(0.326)	[1]	ND	(0.0112)	[1]
N-Nitroso-di-n-propylamine	NA			NA			ND	(0.502)	[1]	ND	(0.029)	[1]
Naphthalene	NA			NA			ND	(0.553)	[1]	ND	(0.0247)	[1]
Nitrobenzene	NA			NA			ND	(0.287)	[1]	ND	(0.0144)	[1]
Pentachlorophenol	NA			NA			ND	(0.16)	[1]	ND	(0.0071)	[1]
Phenanthrene	NA			NA			0.245	J (0.33)	[1]	ND	(0.0205)	[1]
Phenol	NA			NA			ND	(0.472)	[1]	ND	(0.0374)	[1]
Pyrene	NA			NA			9.03	V (0.215)	[1]	ND	(0.0171)	[1]
bis(2-Chloroethoxy)methane	NA			NA			ND	(0.244)	[1]	ND	(0.0124)	[1]
bis(2-Chloroethyl)ether	NA			NA			ND	(0.35)	[1]	ND	(0.0172)	[1]
bis(2-Chloroisopropyl)ether	NA			NA			ND	(0.383)	[1]	ND	(0.0211)	[1]
bis(2-Ethylhexyl)phthalate	NA			NA			ND	V (1.56)	[1]	ND	(0.0607)	[1]
p-Chloroaniline	NA			NA			ND	(0.525)	[1]	ND	(0.0363)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: DA LOCATION ID: DA-FS-24 SAMPLE ID: KAL94-DA-SS-03 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: DA LOCATION ID: DA-FS-25 SAMPLE ID: KAL94-DA-SS-04 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: DA LOCATION ID: DA-FS-31 SAMPLE ID: KAL94-DA-SS-05 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: DA LOCATION ID: DA-FS-34 SAMPLE ID: KAL94-DA-SS-06 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			
AK101 - Gasoline Range Organics (mg/kg)																
Gasoline Range Organics	0	J	(1)	[1]	1	J	(1)	[1]	0	J	(1)	[1]	0	J	(1)	[1]
AK102 - Diesel Range Organics (mg/kg)																
Diesel Range Organics	1	J	(4)	[1]	32000		(400)	[100]	36000		(400)	[100]	990		(40)	[10]
SW8080 - Organochlorine Pesticides and PCBs (ug/kg)																
4,4'-DDD	ND		(8830)	[20000]	ND		(54.9)	[50]	227	P	(8.49)	[20]	ND		(4.73)	[10]
4,4'-DDE	ND		(230)	[500]	14.1	KJ	(25.4)	[50]	201		(8.84)	[20]	ND		(5.87)	[10]
4,4'-DDT	ND		(22600)	[20000]	ND		(52.4)	[50]	2480		(21.7)	[20]	47		(12.1)	[10]
Aldrin	ND		(130)	[500]	0.483	PJ	(15.8)	[50]	16.9		(4.99)	[20]	ND		(2.78)	[10]
Chlordane	ND		(1690)	[500]	ND		(157)	[50]	ND		(65)	[20]	ND		(36.2)	[10]
Dieldrin	ND		(189)	[500]	ND		(12)	[50]	ND		(4.99)	[20]	ND		(2.78)	[10]
Endosulfan I	ND		(207)	[500]	ND		(19.2)	[50]	ND		(7.96)	[20]	ND		(4.43)	[10]
Endosulfan II	ND		(280)	[500]	ND		(26)	[50]	ND		(10)	[20]	ND		(5.59)	[10]
Endosulfan Sulfate	ND		(439)	[500]	ND		(40.8)	[50]	ND		(16.9)	[20]	3.11	KJ	(8.49)	[10]
Endrin	ND		(621)	[500]	32.4	KJ	(57.7)	[50]	ND		(26.9)	[20]	0.36	KJ	(15)	[10]
Endrin Aldehyde	ND		(25600)	[20000]	18.3	KJ	(59.4)	[50]	ND		(24.6)	[20]	ND		(13.7)	[10]
Heptachlor	ND		(99.5)	[500]	ND		(12.9)	[50]	ND		(5.36)	[20]	ND		(2.98)	[10]
Heptachlor epoxide	ND		(8690)	[20000]	ND		(20.2)	[50]	ND		(8.35)	[20]	ND		(4.65)	[10]
Methoxychlor	ND		(156000)	[20000]	209	KJ	(361)	[50]	ND		(150)	[20]	ND		(83.3)	[10]
PCB-1016	ND		(3260)	[500]	ND		(303)	[50]	ND		(126)	[20]	ND		(69.9)	[10]
PCB-1221	ND		(5590)	[500]	ND		(518)	[50]	ND		(215)	[20]	ND		(120)	[10]
PCB-1232	ND		(887)	[500]	ND		(82.3)	[50]	ND		(34.1)	[20]	ND		(19)	[10]
PCB-1242	ND		(1410)	[500]	ND		(131)	[50]	ND		(54.3)	[20]	ND		(30.2)	[10]
PCB-1248	93500		(1050)	[500]	ND		(97.4)	[50]	ND		(40.4)	[20]	ND		(22.5)	[10]
PCB-1254	ND		(1040)	[500]	ND		(96.3)	[50]	ND		(39.9)	[20]	ND		(22.2)	[10]
PCB-1260	6730000		(138000)	[20000]	ND		(320)	[50]	ND		(133)	[20]	ND		(73.9)	[10]
Toxaphene	ND		(6880)	[500]	ND		(638)	[50]	ND		(265)	[20]	ND		(147)	[10]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: DA			DA			DA			DA		
	LOCATION ID: DA-FS-24			DA-FS-25			DA-FS-31			DA-FS-34		
	SAMPLE ID: KAL94-DA-SS-03			KAL94-DA-SS-04			KAL94-DA-SS-05			KAL94-DA-SS-06		
	BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			0 - 0.5			0 - 0.5			0 - 0.5		
SW8080 - Organochlorine Pesticides and PCBs, cont. (ug/kg)												
alpha-BHC	ND	(146)	[500]	ND	(13.5)	[50]	38.8	(4.2)	[20]	11.8	(2.34)	[10]
beta-BHC	ND	(259)	[500]	ND	(24.1)	[50]	ND	(9.98)	[20]	ND	(5.56)	[10]
delta-BHC	ND	(124)	[500]	82.7	(9.63)	[50]	35.9	(3.99)	[20]	21.4	(2.22)	[10]
gamma-BHC	ND	(298)	[500]	ND	(27.7)	[50]	ND	(11.5)	[20]	ND	(6.38)	[10]
SW8240 - Volatile Organics (ug/kg)												
1,1,1-Trichloroethane	ND	(1.93)	[1]	ND	(1.77)	[1]	ND	(1.85)	[1]	ND	(2.04)	[1]
1,1,2,2-Tetrachloroethane	ND Y	(5.24)	[1]	ND Y	(4.82)	[1]	ND Y	(5.01)	[1]	ND	(5.53)	[1]
1,1,2-Trichloroethane	ND Y	(1.58)	[1]	ND Y	(1.45)	[1]	ND Y	(1.51)	[1]	ND	(1.66)	[1]
1,1-Dichloroethane	ND	(1.77)	[1]	ND	(1.63)	[1]	ND	(1.69)	[1]	ND	(1.87)	[1]
1,1-Dichloroethene	ND	(2.65)	[1]	ND	(2.44)	[1]	ND	(2.54)	[1]	ND	(2.8)	[1]
1,2-Dichloroethane	ND	(1.8)	[1]	ND	(1.65)	[1]	ND	(1.72)	[1]	ND	(1.9)	[1]
1,2-Dichloropropane	ND Y	(2.71)	[1]	ND Y	(2.49)	[1]	ND Y	(2.6)	[1]	ND	(2.86)	[1]
2-Chloroethyl vinyl ether	ND Y	(2.96)	[1]	ND Y	(2.72)	[1]	ND Y	(2.83)	[1]	ND	(3.12)	[1]
2-Hexanone	ND Y	(0.991)	[1]	ND Y	(0.91)	[1]	ND Y	(0.948)	[1]	ND	(1.05)	[1]
4-Methyl-2-Pentanone(MIBK)	ND Y	(0.945)	[1]	ND Y	(0.869)	[1]	ND Y	(0.905)	[1]	ND	(0.999)	[1]
Acetone	29.8 B	(1.55)	[1]	30 B	(1.43)	[1]	73.3 B	(1.48)	[1]	15.9 B	(1.64)	[1]
Benzene	ND Y	(1.78)	[1]	ND Y	(1.64)	[1]	26.2 Y	(1.71)	[1]	ND	(1.88)	[1]
Bromodichloromethane	ND Y	(1.69)	[1]	ND Y	(1.55)	[1]	ND Y	(1.61)	[1]	ND	(1.78)	[1]
Bromomethane	ND	(2.08)	[1]	ND	(1.91)	[1]	ND	(1.99)	[1]	ND	(2.19)	[1]
Carbon disulfide	ND	(2.67)	[1]	ND	(2.46)	[1]	ND	(2.56)	[1]	ND	(2.83)	[1]
Carbon tetrachloride	ND Y	(2.06)	[1]	ND Y	(1.9)	[1]	ND Y	(1.98)	[1]	ND	(2.18)	[1]
Chlorobenzene	ND Y	(4.8)	[1]	ND Y	(4.41)	[1]	ND Y	(4.59)	[1]	ND	(5.07)	[1]
Chloroethane	ND	(2.11)	[1]	ND	(1.94)	[1]	ND	(2.02)	[1]	ND	(2.23)	[1]
Chloroform	ND	(2.16)	[1]	ND	(1.99)	[1]	ND	(2.07)	[1]	ND	(2.28)	[1]
Chloromethane	ND	(2.52)	[1]	ND	(2.31)	[1]	ND	(2.41)	[1]	ND	(2.66)	[1]
Dibromochloromethane	ND Y	(1.89)	[1]	ND Y	(1.74)	[1]	ND Y	(1.81)	[1]	ND	(2)	[1]
Ethyl benzene	ND Y	(1.71)	[1]	ND Y	(1.57)	[1]	ND Y	(1.64)	[1]	ND	(1.81)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID				SITE ID				SITE ID				SITE ID			
	LOCATION ID				LOCATION ID				LOCATION ID				LOCATION ID			
	SAMPLE ID				SAMPLE ID				SAMPLE ID				SAMPLE ID			
	BEG. DEPTH - END DEPTH (FT.)				BEG. DEPTH - END DEPTH (FT.)				BEG. DEPTH - END DEPTH (FT.)				BEG. DEPTH - END DEPTH (FT.)			
	DA				DA				DA				DA			
	DA-FS-24				DA-FS-25				DA-FS-31				DA-FS-34			
	KAL94-DA-SS-03				KAL94-DA-SS-04				KAL94-DA-SS-05				KAL94-DA-SS-06			
	0 - 0.5				0 - 0.5				0 - 0.5				0 - 0.5			
SW8240 - Volatile Organics, cont. (ug/kg)																
Methyl ethyl ketone	ND		(1.58)	[1]	ND		(1.45)	[1]	ND		(1.51)	[1]	ND		(1.66)	[1]
Methylene Chloride	4.26	B	(2.7)	[1]	8.66	B	(2.48)	[1]	4.93	B	(2.58)	[1]	1.3	BJ	(2.85)	[1]
Styrene	ND	Y	(1.67)	[1]	ND	Y	(1.54)	[1]	ND	Y	(1.6)	[1]	ND		(1.77)	[1]
Tetrachloroethene	ND	Y	(4.91)	[1]	ND	Y	(4.51)	[1]	ND	Y	(4.7)	[1]	ND		(5.19)	[1]
Toluene	ND	Y	(1.76)	[1]	ND	Y	(1.62)	[1]	11.5	Y	(1.68)	[1]	ND		(1.86)	[1]
Tribromomethane(Bromoform)	ND	Y	(1.56)	[1]	ND	Y	(1.44)	[1]	ND	Y	(1.5)	[1]	ND		(1.65)	[1]
Trichloroethene	ND	Y	(5.02)	[1]	ND	Y	(4.61)	[1]	ND	Y	(4.8)	[1]	ND		(5.3)	[1]
Vinyl Chloride	ND		(2.14)	[1]	ND		(1.96)	[1]	ND		(2.05)	[1]	ND		(2.26)	[1]
Vinyl acetate	ND		(11.3)	[1]	ND		(10.4)	[1]	ND		(10.8)	[1]	ND		(12)	[1]
Xylene (total)	ND	Y	(3.76)	[1]	ND	Y	(3.46)	[1]	ND	Y	(3.6)	[1]	ND		(3.97)	[1]
cis-1,2-Dichloroethene	ND		(1.95)	[1]	ND		(1.8)	[1]	ND		(1.87)	[1]	ND		(2.06)	[1]
cis-1,3-Dichloropropene	ND	Y	(1.66)	[1]	ND	Y	(1.53)	[1]	ND	Y	(1.59)	[1]	ND		(1.75)	[1]
trans-1,2-Dichloroethene	ND		(2.41)	[1]	ND		(2.21)	[1]	ND		(2.3)	[1]	ND		(2.54)	[1]
trans-1,3-Dichloropropene	ND	Y	(1.8)	[1]	ND	Y	(1.65)	[1]	ND	Y	(1.72)	[1]	ND		(1.9)	[1]
SW8270 - Semivolatile Organics (ug/g)																
1,2,4-Trichlorobenzene	109		(1.01)	[5]	ND		(1.16)	[5]	ND		(0.236)	[1]	ND		(0.196)	[1]
1,2-Dichlorobenzene	ND		(1.41)	[5]	ND		(1.62)	[5]	ND		(0.331)	[1]	ND		(0.654)	[1]
1,3-Dichlorobenzene	ND		(1.32)	[5]	ND		(1.52)	[5]	ND		(0.31)	[1]	ND		(0.726)	[1]
1,4-Dichlorobenzene	ND		(2.24)	[5]	ND		(2.57)	[5]	ND		(0.525)	[1]	ND		(0.721)	[1]
2,4,5-Trichlorophenol	ND		(1.89)	[5]	ND		(2.18)	[5]	ND		(0.444)	[1]	ND		(0.598)	[1]
2,4,6-Trichlorophenol	ND		(1.74)	[5]	ND		(2)	[5]	ND		(0.408)	[1]	ND		(0.495)	[1]
2,4-Dichlorophenol	ND		(1.45)	[5]	ND		(1.67)	[5]	ND		(0.34)	[1]	ND		(0.593)	[1]
2,4-Dimethylphenol	ND		(5.82)	[5]	ND		(6.69)	[5]	ND		(1.36)	[1]	ND		(1.3)	[1]
2,4-Dinitrophenol	ND		(12.3)	[5]	ND		(14.2)	[5]	ND		(2.89)	[1]	ND		(2.64)	[1]
2,4-Dinitrotoluene	ND		(2.11)	[5]	ND		(2.42)	[5]	ND		(0.495)	[1]	ND		(0.784)	[1]
2,6-Dinitrotoluene	ND		(1.79)	[5]	ND		(2.05)	[5]	ND		(0.419)	[1]	ND		(1.07)	[1]
2-Chloronaphthalene	ND		(2.88)	[5]	ND		(3.32)	[5]	ND		(0.677)	[1]	ND		(0.917)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID	DA	DA	DA	DA
	LOCATION ID	DA-FS-24	DA-FS-25	DA-FS-31	DA-FS-34
	SAMPLE ID	KAL94-DA-SS-03	KAL94-DA-SS-04	KAL94-DA-SS-05	KAL94-DA-SS-06
	BEG. DEPTH - END DEPTH (FT.)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
SW8270 - Semivolatile Organics, cont. (ug/g)					
2-Chlorophenol		ND (2.09) [5]	ND (2.4) [5]	ND (0.49) [1]	ND (0.335) [1]
2-Methylnaphthalene		ND (2.48) [5]	ND (2.85) [5]	ND (0.582) [1]	ND (0.617) [1]
2-Methylphenol		ND (5.31) [5]	ND (6.1) [5]	ND (1.25) [1]	ND (0.806) [1]
2-Nitroaniline		ND (1.95) [5]	ND (2.24) [5]	ND (0.457) [1]	ND (0.815) [1]
2-Nitrophenol		ND (2.32) [5]	ND (2.66) [5]	ND (0.544) [1]	ND (0.433) [1]
3,3'-Dichlorobenzidine		ND (4.85) [5]	ND (5.57) [5]	ND (1.14) [1]	ND (1.11) [1]
3-Nitroaniline		ND (2.34) [5]	ND (2.69) [5]	ND (0.549) [1]	ND (0.328) [1]
4,6-Dinitro-2-methylphenol		ND (3.5) [5]	ND (4.02) [5]	ND (0.821) [1]	ND (0.746) [1]
4-Bromophenyl phenyl ether		ND (2.51) [5]	ND (2.88) [5]	ND (0.588) [1]	ND (0.622) [1]
4-Chloro-3-methylphenol		ND (1.55) [5]	ND (1.78) [5]	ND (0.363) [1]	ND (0.467) [1]
4-Chlorophenyl phenyl ether		ND (3.48) [5]	ND (4.01) [5]	ND (0.818) [1]	ND (0.747) [1]
4-Methylphenol/3-Methylphenol		ND (4.8) [5]	ND (5.52) [5]	ND (1.13) [1]	ND (1.26) [1]
4-Nitroaniline		ND (2.35) [5]	ND (2.71) [5]	ND (0.552) [1]	ND (0.611) [1]
4-Nitrophenol		ND (2.1) [5]	ND (2.41) [5]	ND (0.493) [1]	ND (0.644) [1]
Acenaphthene		ND (1.9) [5]	ND (2.18) [5]	ND (0.445) [1]	ND (0.492) [1]
Acenaphthylene		ND (3.51) [5]	ND (4.04) [5]	ND (0.824) [1]	ND (0.671) [1]
Anthracene		ND (2.35) [5]	ND (2.71) [5]	ND (0.552) [1]	ND (0.55) [1]
Benzo(a)anthracene		ND (1.85) [5]	3.87 F (2.13) [5]	ND (0.434) [1]	ND (0.355) [1]
Benzo(a)pyrene		ND (2.88) [5]	ND (3.32) [5]	ND V (0.677) [1]	ND (0.551) [1]
Benzo(b)fluoranthene		ND (4.54) [5]	ND (5.22) [5]	ND V (1.06) [1]	ND (0.978) [1]
Benzo(g,h,i)perylene		ND (2.01) [5]	ND (2.31) [5]	ND V (0.471) [1]	ND (0.565) [1]
Benzo(k)fluoranthene		ND (3.05) [5]	ND (3.5) [5]	ND V (0.715) [1]	ND (0.836) [1]
Benzoic acid		ND (27.8) [5]	ND (32) [5]	ND (6.53) [1]	ND (3.05) [1]
Benzyl alcohol		ND (2.13) [5]	ND (2.45) [5]	ND (0.499) [1]	ND (1.47) [1]
Butylbenzylphthalate		ND (2.44) [5]	ND (2.8) [5]	ND (0.572) [1]	ND (0.766) [1]
Chrysene		ND (1.26) [5]	3.87 F (1.45) [5]	ND (0.297) [1]	ND (0.597) [1]
Di-n-octylphthalate		ND (2.04) [5]	ND (2.35) [5]	ND V (0.479) [1]	ND (0.594) [1]
Dibenz(a,h)anthracene		ND (2.24) [5]	ND (2.58) [5]	ND V (0.526) [1]	ND (0.697) [1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)											
	DA DA-FS-24 KAL94-DA-SS-03 0 - 0.5			DA DA-FS-25 KAL94-DA-SS-04 0 - 0.5			DA DA-FS-31 KAL94-DA-SS-05 0 - 0.5			DA DA-FS-34 KAL94-DA-SS-06 0 - 0.5		
SW8270 - Semivolatile Organics, cont. (ug/g)												
Dibenzofuran	ND	(1.66)	[5]	ND	(1.91)	[5]	ND	(0.39)	[1]	ND	(0.399)	[1]
Dibutylphthalate	ND	(2.02)	[5]	ND	(2.32)	[5]	ND	(0.474)	[1]	ND	(0.316)	[1]
Diethylphthalate	ND	(1.45)	[5]	ND	(1.67)	[5]	ND	(0.341)	[1]	ND	(0.377)	[1]
Dimethylphthalate	ND	(1.49)	[5]	ND	(1.71)	[5]	ND	(0.35)	[1]	ND	(0.48)	[1]
Diphenylamine	ND	(3.43)	[5]	ND	(3.95)	[5]	ND	(0.806)	[1]	ND	(0.779)	[1]
Fluoranthene	ND	(0.78)	[5]	ND	(0.897)	[5]	ND	(0.183)	[1]	ND	(0.433)	[1]
Fluorene	ND	(1.31)	[5]	ND	(1.51)	[5]	ND	(0.308)	[1]	ND	(0.352)	[1]
Hexachlorobenzene	ND	(2.19)	[5]	ND	(2.52)	[5]	ND	(0.513)	[1]	ND	(0.539)	[1]
Hexachlorobutadiene	ND	(1.12)	[5]	ND	(1.28)	[5]	ND	(0.262)	[1]	ND	(0.67)	[1]
Hexachlorocyclopentadiene	ND	(7.57)	[5]	ND	(8.7)	[5]	ND	(1.78)	[1]	ND	(1.67)	[1]
Hexachloroethane	ND	(1.14)	[5]	ND	(1.31)	[5]	ND	(0.266)	[1]	ND	(1.02)	[1]
Indeno(1,2,3-cd)pyrene	ND	(2.4)	[5]	ND	(2.75)	[5]	ND V	(0.562)	[1]	ND	(0.491)	[1]
Isophorone	ND	(1.7)	[5]	ND	(1.96)	[5]	ND	(0.4)	[1]	ND	(0.308)	[1]
N-Nitroso-di-n-propylamine	ND	(2.63)	[5]	ND	(3.02)	[5]	ND	(0.616)	[1]	ND	(0.801)	[1]
Naphthalene	ND	(2.89)	[5]	ND	(3.33)	[5]	ND	(0.679)	[1]	ND	(0.681)	[1]
Nitrobenzene	ND	(1.5)	[5]	ND	(1.72)	[5]	ND	(0.352)	[1]	ND	(0.397)	[1]
Pentachlorophenol	ND	(0.835)	[5]	ND	(0.96)	[5]	ND	(0.196)	[1]	ND	(0.196)	[1]
Phenanthrene	ND	(1.73)	[5]	ND	(1.98)	[5]	ND	(0.405)	[1]	ND	(0.565)	[1]
Phenol	ND	(2.47)	[5]	ND	(2.84)	[5]	ND	(0.579)	[1]	ND	(1.03)	[1]
Pyrene	ND	(1.13)	[5]	ND	(1.29)	[5]	ND	(0.264)	[1]	ND	(0.471)	[1]
bis(2-Chloroethoxy)methane	ND	(1.27)	[5]	ND	(1.46)	[5]	ND	(0.299)	[1]	ND	(0.341)	[1]
bis(2-Chloroethyl)ether	ND	(1.83)	[5]	ND	(2.11)	[5]	ND	(0.43)	[1]	ND	(0.475)	[1]
bis(2-Chloroisopropyl)ether	ND	(2)	[5]	ND	(2.3)	[5]	ND	(0.47)	[1]	ND	(0.582)	[1]
bis(2-Ethylhexyl)phthalate	ND	(8.17)	[5]	3.4 J	(9.39)	[5]	ND	(1.92)	[1]	ND	(1.67)	[1]
p-Chloroaniline	ND	(2.75)	[5]	ND	(3.16)	[5]	ND	(0.644)	[1]	ND	(1)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)											
	DT DT-FS-01 KAL94-DT-SS-01 0 - 0.5			DT DT-FS-02 KAL94-DT-SS-02 0 - 0.5			DT DT-FS-03 KAL94-DT-SS-03 0 - 0.5			EQ EQ-FS-02 KAL94-EQ-SS-01 0 - 0.5		
AK101 - Gasoline Range Organics (mg/kg)												
Gasoline Range Organics	0 J	(5)	[5]	40	(10)	[10]	0 J	(5)	[5]	0 J	(5)	[5]
AK102 - Diesel Range Organics (mg/kg)												
Diesel Range Organics	11	(4)	[1]	1600	(8)	[2]	1500	(8)	[2]	2400	(40)	[10]
SW8080 - Organochlorine Pesticides and PCBs (ug/kg)												
4,4'-DDD	NA			NA			NA			240 P	(33.3)	[100]
4,4'-DDE	NA			NA			NA			60.3	(38.3)	[100]
4,4'-DDT	NA			NA			NA			3430	(40.8)	[100]
Aldrin	NA			NA			NA			ND	(45.7)	[100]
Chlordane	NA			NA			NA			ND	(221)	[100]
Dieldrin	NA			NA			NA			98.4	(31.2)	[100]
Endosulfan I	NA			NA			NA			ND	(23.9)	[100]
Endosulfan II	NA			NA			NA			ND	(41.9)	[100]
Endosulfan Sulfate	NA			NA			NA			ND	(55.3)	[100]
Endrin	NA			NA			NA			ND	(84.3)	[100]
Endrin Aldehyde	NA			NA			NA			ND	(69.6)	[100]
Heptachlor	NA			NA			NA			19.3 KJ	(71.8)	[100]
Heptachlor epoxide	NA			NA			NA			ND	(104)	[100]
Methoxychlor	NA			NA			NA			ND	(439)	[100]
PCB-1016	NA			NA			NA			ND	(357)	[100]
PCB-1221	NA			NA			NA			ND	(321)	[100]
PCB-1232	NA			NA			NA			ND	(810)	[100]
PCB-1242	NA			NA			NA			ND	(297)	[100]
PCB-1248	NA			NA			NA			ND	(351)	[100]
PCB-1254	NA			NA			NA			ND	(141)	[100]
PCB-1260	NA			NA			NA			ND	(390)	[100]
Toxaphene	NA			NA			NA			ND	(627)	[100]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)					
	DT DT-FS-01 KAL94-DT-SS-01 0 - 0.5	DT DT-FS-02 KAL94-DT-SS-02 0 - 0.5	DT DT-FS-03 KAL94-DT-SS-03 0 - 0.5	EQ EQ-FS-02 KAL94-EQ-SS-01 0 - 0.5		
SW8080 - Organochlorine Pesticides and PCBs, cont. (ug/kg)						
alpha-BHC	NA	NA	NA	ND	(31.8)	[100]
beta-BHC	NA	NA	NA	ND	(45)	[100]
delta-BHC	NA	NA	NA	ND	(26)	[100]
gamma-BHC	NA	NA	NA	ND	(19.8)	[100]
SW8240 - Volatile Organics (ug/kg)						
1,1,1-Trichloroethane	NA	NA	NA	ND	(1.7)	[1]
1,1,2,2-Tetrachloroethane	NA	NA	NA	ND Y	(4.61)	[1]
1,1,2-Trichloroethane	NA	NA	NA	ND Y	(1.38)	[1]
1,1-Dichloroethane	NA	NA	NA	ND	(1.56)	[1]
1,1-Dichloroethene	NA	NA	NA	ND	(2.33)	[1]
1,2-Dichloroethane	NA	NA	NA	ND	(1.58)	[1]
1,2-Dichloropropane	NA	NA	NA	ND	(2.38)	[1]
2-Chloroethyl vinyl ether	NA	NA	NA	ND	(2.6)	[1]
2-Hexanone	NA	NA	NA	ND Y	(0.871)	[1]
4-Methyl-2-Pentanone(MIBK)	NA	NA	NA	ND	(0.831)	[1]
Acetone	NA	NA	NA	9.81 B	(1.36)	[1]
Benzene	NA	NA	NA	ND	(1.57)	[1]
Bromodichloromethane	NA	NA	NA	ND	(1.48)	[1]
Bromomethane	NA	NA	NA	ND	(1.83)	[1]
Carbon disulfide	NA	NA	NA	ND	(2.35)	[1]
Carbon tetrachloride	NA	NA	NA	ND	(1.81)	[1]
Chlorobenzene	NA	NA	NA	ND Y	(4.22)	[1]
Chloroethane	NA	NA	NA	ND	(1.86)	[1]
Chloroform	NA	NA	NA	ND	(1.9)	[1]
Chloromethane	NA	NA	NA	ND	(2.21)	[1]
Dibromochloromethane	NA	NA	NA	ND Y	(1.66)	[1]
Ethyl benzene	NA	NA	NA	ND Y	(1.5)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)							
	DT DT-FS-01 KAL94-DT-SS-01 0 - 0.5		DT DT-FS-02 KAL94-DT-SS-02 0 - 0.5		DT DT-FS-03 KAL94-DT-SS-03 0 - 0.5	EQ EQ-FS-02 KAL94-EQ-SS-01 0 - 0.5		
SW8240 - Volatile Organics, cont.	(ug/kg)							
Methyl ethyl ketone	NA		NA		NA	ND	(1.38)	[1]
Methylene Chloride	NA		NA		NA	1.07 BJ	(2.37)	[1]
Styrene	NA		NA		NA	ND Y	(1.47)	[1]
Tetrachloroethene	NA		NA		NA	ND Y	(4.32)	[1]
Toluene	NA		NA		NA	ND	(1.55)	[1]
Tribromomethane(Bromoform)	NA		NA		NA	ND Y	(1.37)	[1]
Trichloroethene	NA		NA		NA	ND	(4.41)	[1]
Vinyl Chloride	NA		NA		NA	ND	(1.88)	[1]
Vinyl acetate	NA		NA		NA	ND	(9.95)	[1]
Xylene (total)	NA		NA		NA	ND Y	(3.31)	[1]
cis-1,2-Dichloroethene	NA		NA		NA	ND	(1.72)	[1]
cis-1,3-Dichloropropene	NA		NA		NA	ND	(1.46)	[1]
trans-1,2-Dichloroethene	NA		NA		NA	ND	(2.11)	[1]
trans-1,3-Dichloropropene	NA		NA		NA	ND	(1.58)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: EQ LOCATION ID: EQ-FS-03 SAMPLE ID: KAL94-EQ-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: EQ LOCATION ID: EQ-FS-05 SAMPLE ID: KAL94-EQ-SS-03 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: EQ LOCATION ID: EQ-FS-08 SAMPLE ID: KAL94-EQ-SS-04 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: ET LOCATION ID: ET-FS-03 SAMPLE ID: KAL94-ET-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			
AK101 - Gasoline Range Organics (mg/kg)																
Gasoline Range Organics	0	J	(5)	[5]	0	J	(5)	[5]	0	J	(5)	[5]	NA			
AK102 - Diesel Range Organics (mg/kg)																
Diesel Range Organics	3600		(40)	[10]	1000		(20)	[5]	160		(20)	[5]	NA			
SW8080 - Organochlorine Pesticides and PCBs (ug/kg)																
4,4'-DDD	ND		(176)	[100]	ND		(167)	[100]	ND		(32.7)	[100]	ND		(0.345)	[1]
4,4'-DDE	83.3	W	(42)	[100]	59.6	W	(39.8)	[100]	ND		(37.7)	[100]	2.07	W	(0.43)	[1]
4,4'-DDT	ND	W	(147)	[100]	ND	W	(139)	[100]	135		(40.1)	[100]	ND	W	(1.5)	[1]
Aldrin	ND		(27)	[100]	ND		(43.9)	[100]	ND		(45)	[100]	0.909		(0.474)	[1]
Chlordane	ND		(224)	[100]	ND		(213)	[100]	ND		(218)	[100]	ND		(2.3)	[1]
Dieldrin	128	W	(45.9)	[100]	104	W	(43.5)	[100]	ND		(44.5)	[100]	2.46	W	(0.469)	[1]
Endosulfan I	ND		(24.2)	[100]	11.2	KJ	(47.9)	[100]	ND		(23.5)	[100]	ND		(0.517)	[1]
Endosulfan II	ND	W	(23.5)	[100]	ND	W	(22.3)	[100]	ND		(41.2)	[100]	ND	W	(0.241)	[1]
Endosulfan Sulfate	ND		(56)	[100]	ND		(53.1)	[100]	ND		(54.4)	[100]	ND		(0.574)	[1]
Endrin	ND		(85.4)	[100]	ND		(81)	[100]	ND		(82.9)	[100]	ND		(0.874)	[1]
Endrin Aldehyde	ND	W	(67)	[100]	ND	W	(63.5)	[100]	ND		(68.5)	[100]	ND	W	(0.686)	[1]
Heptachlor	ND		(61.1)	[100]	ND		(58)	[100]	ND		(59.3)	[100]	0.482	J	(0.626)	[1]
Heptachlor epoxide	19.9	KJ	(21.2)	[100]	ND		(100)	[100]	ND		(102)	[100]	1.11	P	(0.217)	[1]
Methoxychlor	ND		(445)	[100]	ND		(422)	[100]	ND		(432)	[100]	23.7		(7.08)	[1]
PCB-1016	ND		(361)	[100]	ND		(343)	[100]	ND		(351)	[100]	ND		(3.7)	[1]
PCB-1221	ND		(325)	[100]	ND		(308)	[100]	ND		(315)	[100]	ND		(3.33)	[1]
PCB-1232	ND		(821)	[100]	ND		(779)	[100]	ND		(797)	[100]	ND		(8.4)	[1]
PCB-1242	ND		(301)	[100]	ND		(285)	[100]	ND		(292)	[100]	ND		(3.08)	[1]
PCB-1248	ND		(356)	[100]	ND		(338)	[100]	ND		(345)	[100]	ND		(3.64)	[1]
PCB-1254	ND		(143)	[100]	ND		(135)	[100]	ND		(138)	[100]	ND		(1.46)	[1]
PCB-1260	9790		(396)	[100]	4910		(375)	[100]	ND		(384)	[100]	287		(4.05)	[1]
Toxaphene	ND		(635)	[100]	ND		(603)	[100]	ND		(617)	[100]	ND		(6.5)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)														
	EQ EQ-FS-03 KAL94-EQ-SS-02 0 - 0.5				EQ EQ-FS-05 KAL94-EQ-SS-03 0 - 0.5				EQ EQ-FS-08 KAL94-EQ-SS-04 0 - 0.5				ET ET-FS-03 KAL94-ET-SS-01 0 - 0.5			
SW8080 - Organochlorine Pesticides and PCBs, cont. (ug/kg)																
alpha-BHC	ND		(32.3)	[100]	ND		(30.6)	[100]	ND		(31.3)	[100]	ND	(0.283)	[1]	
beta-BHC	ND		(45.6)	[100]	ND		(43.3)	[100]	ND		(44.3)	[100]	ND	(0.383)	[1]	
delta-BHC	ND		(26.3)	[100]	ND		(24.9)	[100]	ND		(25.5)	[100]	ND	(0.269)	[1]	
gamma-BHC	ND		(20.1)	[100]	ND		(19.1)	[100]	ND		(19.5)	[100]	ND	(0.206)	[1]	
SW8240 - Volatile Organics (ug/kg)																
1,1,1-Trichloroethane	ND		(1.75)	[1]	ND		(1.68)	[1]	ND		(1.68)	[1]	NA			
1,1,2,2-Tetrachloroethane	ND	Y	(4.74)	[1]	ND	Y	(4.55)	[1]	ND	Y	(4.56)	[1]	NA			
1,1,2-Trichloroethane	ND	Y	(1.43)	[1]	ND	Y	(1.37)	[1]	ND	Y	(1.37)	[1]	NA			
1,1-Dichloroethane	ND		(1.6)	[1]	ND		(1.54)	[1]	ND		(1.54)	[1]	NA			
1,1-Dichloroethene	ND		(2.4)	[1]	ND		(2.3)	[1]	ND		(2.31)	[1]	NA			
1,2-Dichloroethane	ND		(1.63)	[1]	ND		(1.56)	[1]	ND		(1.56)	[1]	NA			
1,2-Dichloropropane	ND		(2.46)	[1]	ND		(2.36)	[1]	ND		(2.36)	[1]	NA			
2-Chloroethyl vinyl ether	ND		(2.68)	[1]	ND		(2.57)	[1]	ND		(2.57)	[1]	NA			
2-Hexanone	ND	Y	(0.897)	[1]	ND	Y	(0.861)	[1]	ND	Y	(0.863)	[1]	NA			
4-Methyl-2-Pentanone(MIBK)	ND		(0.856)	[1]	ND		(0.821)	[1]	ND		(0.824)	[1]	NA			
Acetone	10.1	B	(1.4)	[1]	11.8	B	(1.35)	[1]	11.6	B	(1.35)	[1]	NA			
Benzene	ND		(1.61)	[1]	ND		(1.55)	[1]	ND		(1.55)	[1]	NA			
Bromodichloromethane	ND		(1.53)	[1]	ND		(1.46)	[1]	ND		(1.47)	[1]	NA			
Bromomethane	ND		(1.88)	[1]	ND		(1.8)	[1]	ND		(1.81)	[1]	NA			
Carbon disulfide	ND		(2.42)	[1]	ND		(2.32)	[1]	ND		(2.33)	[1]	NA			
Carbon tetrachloride	ND		(1.87)	[1]	ND		(1.79)	[1]	ND		(1.8)	[1]	NA			
Chlorobenzene	ND	Y	(4.35)	[1]	ND	Y	(4.17)	[1]	ND	Y	(4.18)	[1]	NA			
Chloroethane	ND		(1.91)	[1]	ND		(1.84)	[1]	ND		(1.84)	[1]	NA			
Chloroform	ND		(1.96)	[1]	ND		(1.88)	[1]	ND		(1.88)	[1]	NA			
Chloromethane	ND		(2.28)	[1]	ND		(2.19)	[1]	ND		(2.19)	[1]	NA			
Dibromochloromethane	ND	Y	(1.71)	[1]	ND	Y	(1.64)	[1]	ND	Y	(1.65)	[1]	NA			
Ethyl benzene	ND	Y	(1.55)	[1]	ND	Y	(1.49)	[1]	ND	Y	(1.49)	[1]	NA			

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)																
	EQ EQ-FS-03 KAL94-EQ-SS-02 0 - 0.5				EQ EQ-FS-05 KAL94-EQ-SS-03 0 - 0.5				EQ EQ-FS-08 KAL94-EQ-SS-04 0 - 0.5				ET ET-FS-03 KAL94-ET-SS-01 0 - 0.5			
SW8240 - Volatile Organics, cont.	(ug/kg)															
Methyl ethyl ketone	ND		(1.43)	[1]	ND		(1.37)	[1]	ND		(1.37)	[1]	NA			
Methylene Chloride	1.39	BJ	(2.44)	[1]	1.31	BJ	(2.35)	[1]	1.07	BJ	(2.35)	[1]	NA			
Styrene	ND	Y	(1.52)	[1]	ND	Y	(1.45)	[1]	ND	Y	(1.46)	[1]	NA			
Tetrachloroethene	ND	Y	(4.45)	[1]	ND	Y	(4.27)	[1]	ND	Y	(4.28)	[1]	NA			
Toluene	ND		(1.59)	[1]	ND		(1.53)	[1]	ND		(1.53)	[1]	NA			
Tribromomethane(Bromoform)	ND	Y	(1.42)	[1]	ND	Y	(1.36)	[1]	ND	Y	(1.36)	[1]	NA			
Trichloroethene	ND		(4.55)	[1]	ND		(4.36)	[1]	ND		(4.37)	[1]	NA			
Vinyl Chloride	ND		(1.94)	[1]	ND		(1.86)	[1]	ND		(1.86)	[1]	NA			
Vinyl acetate	ND		(10.3)	[1]	ND		(9.84)	[1]	ND		(9.86)	[1]	NA			
Xylene (total)	ND	Y	(3.41)	[1]	ND	Y	(3.27)	[1]	ND	Y	(3.28)	[1]	NA			
cis-1,2-Dichloroethene	ND		(1.77)	[1]	ND		(1.7)	[1]	ND		(1.7)	[1]	NA			
cis-1,3-Dichloropropene	ND		(1.5)	[1]	ND		(1.44)	[1]	ND		(1.45)	[1]	NA			
trans-1,2-Dichloroethene	ND		(2.18)	[1]	ND		(2.09)	[1]	ND		(2.1)	[1]	NA			
trans-1,3-Dichloropropene	ND		(1.63)	[1]	ND		(1.56)	[1]	ND		(1.56)	[1]	NA			

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: ET LOCATION ID: ET-FS-05 SAMPLE ID: KAL94-ET-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			SITE ID: ET LOCATION ID: ET-FS-06 SAMPLE ID: KAL94-ET-SS-03 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			SITE ID: ET LOCATION ID: ET-FS-10 SAMPLE ID: KAL94-ET-SS-04 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			SITE ID: GT LOCATION ID: GT-FS-02 SAMPLE ID: KAL94-GT-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5		
AK101 - Gasoline Range Organics (mg/kg)												
Gasoline Range Organics	NA			NA			NA			0 J	(5)	[5]
AK102 - Diesel Range Organics (mg/kg)												
Diesel Range Organics	NA			NA			NA			56	(4)	[1]
SW8080 - Organochlorine Pesticides and PCBs (ug/kg)												
4,4'-DDD	ND	(17.2)	[50]	NA			NA			NA		
4,4'-DDE	51.8 W	(21.4)	[50]	ND	(21.7)	[50]	ND	(20.6)	[50]	NA		
4,4'-DDT	NA	(74.8)	[50]	NA	(76)	[50]	NA	(72)	[50]	NA		
Aldrin	ND	(23.6)	[50]	ND	(23.9)	[50]	ND	(22.7)	[50]	NA		
Chlordane	ND	(114)	[50]	ND	(116)	[50]	ND	(110)	[50]	NA		
Dieldrin	141 W	(23.3)	[50]	357 W	(23.7)	[50]	88.2 W	(22.5)	[50]	NA		
Endosulfan I	ND	(25.7)	[50]	ND	(26.1)	[50]	ND	(24.7)	[50]	NA		
Endosulfan II	ND	(12)	[50]	ND W	(12.2)	[50]	ND	(11.5)	[50]	NA		
Endosulfan Sulfate	ND	(28.5)	[50]	ND	(29)	[50]	ND	(27.4)	[50]	NA		
Endrin	ND	(43.5)	[50]	ND	(32.3)	[50]	ND	(30.6)	[50]	NA		
Endrin Aldehyde	NA	(34.1)	[50]	NA	(34.6)	[50]	NA	(32.8)	[50]	NA		
Heptachlor	ND	(31.1)	[50]	6.14 KJ	(37.6)	[50]	ND	(29.9)	[50]	NA		
Heptachlor epoxide	ND	(53.7)	[50]	ND	(54.5)	[50]	ND	(51.6)	[50]	NA		
Methoxychlor	NA	(352)	[50]	NA	(358)	[50]	NA	(339)	[50]	NA		
PCB-1016	ND	(184)	[50]	ND	(187)	[50]	ND	(177)	[50]	NA		
PCB-1221	ND	(165)	[50]	ND	(168)	[50]	ND	(159)	[50]	NA		
PCB-1232	ND	(418)	[50]	ND	(425)	[50]	ND	(402)	[50]	NA		
PCB-1242	ND	(153)	[50]	ND	(155)	[50]	ND	(147)	[50]	NA		
PCB-1248	ND	(181)	[50]	ND	(184)	[50]	ND	(174)	[50]	NA		
PCB-1254	ND	(72.6)	[50]	ND	(73.7)	[50]	ND	(69.8)	[50]	NA		
PCB-1260	14000	(201)	[50]	124000	(1640)	[400]	15800	(194)	[50]	NA		
Toxaphene	ND	(323)	[50]	ND	(329)	[50]	ND	(311)	[50]	NA		

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)										
	ET ET-FS-05 KAL94-ET-SS-02 0 - 0.5			ET ET-FS-06 KAL94-ET-SS-03 0 - 0.5			ET ET-FS-10 KAL94-ET-SS-04 0 - 0.5			GT GT-FS-02 KAL94-GT-SS-01 0 - 0.5	
SW8080 - Organochlorine Pesticides and PCBs, cont. (ug/kg)											
alpha-BHC	ND	(16.4)	[50]	ND	(16.7)	[50]	ND	(15.8)	[50]	NA	
beta-BHC	ND	(23.2)	[50]	ND	(23.6)	[50]	ND	(22.3)	[50]	NA	
delta-BHC	ND	(13.4)	[50]	ND	(13.6)	[50]	ND	(12.9)	[50]	NA	
gamma-BHC	ND	(10.2)	[50]	ND	(10.4)	[50]	ND	(9.85)	[50]	NA	

Compiled: 26 January 1995

() = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID	PS	PS	PS	PS
	LOCATION ID	PS-FS-03	PS-FS-04	PS-FS-05	PS-FS-08
	SAMPLE ID	KAL94-PS-SS-01	KAL94-PS-SS-02	KAL94-PS-SS-03	KAL94-PS-SS-04
	BEG. DEPTH - END DEPTH (FT.)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
SW8080 - Organochlorine Pesticides and PCBs (ug/kg)					
4,4'-DDD		NA	NA	2.46 P (0.347) [1]	1.51 P (0.358) [1]
4,4'-DDE		19.7 W (8.96) [20]	1.15 W (0.428) [1]	2.25 (0.399) [1]	0.738 (0.412) [1]
4,4'-DDT		ND W (31.4) [20]	ND W (1.5) [1]	36.5 (0.425) [1]	4.8 (0.439) [1]
Aldrin		ND (9.88) [20]	ND (0.472) [1]	5.59 (0.477) [1]	ND (0.287) [1]
Chlordane		ND (47.9) [20]	ND (2.29) [1]	ND (2.31) [1]	ND (2.39) [1]
Dieldrin		ND W (9.79) [20]	1.85 W (0.468) [1]	1.59 (0.325) [1]	ND (0.488) [1]
Endosulfan I		ND W (10.8) [20]	ND (0.515) [1]	ND (0.249) [1]	ND (0.257) [1]
Endosulfan II		ND W (5.02) [20]	ND W (0.24) [1]	0.0008 PJ (0.437) [1]	ND (0.451) [1]
Endosulfan Sulfate		ND (12) [20]	ND (0.572) [1]	ND (0.577) [1]	1.1 KJ (1.2) [1]
Endrin		ND (18.2) [20]	ND (0.871) [1]	0.605 KJ (0.879) [1]	0.378 KJ (0.908) [1]
Endrin Aldehyde		ND W (14.3) [20]	ND W (0.683) [1]	2.15 (0.726) [1]	0.572 KJ (0.712) [1]
Heptachlor		ND (13) [20]	0.23 KJ (0.742) [1]	ND (0.629) [1]	0.217 KJ (0.773) [1]
Heptachlor epoxide		ND (22.5) [20]	ND (1.08) [1]	0.636 J (1.09) [1]	ND (1.12) [1]
Methoxychlor		ND (148) [20]	ND (7.06) [1]	ND (4.58) [1]	ND (4.74) [1]
PCB-1016		ND (77.1) [20]	ND (3.69) [1]	ND (3.72) [1]	ND (3.84) [1]
PCB-1221		ND (69.3) [20]	ND (3.31) [1]	ND (3.34) [1]	ND (3.45) [1]
PCB-1232		ND (175) [20]	ND (8.38) [1]	ND (8.45) [1]	ND (8.73) [1]
PCB-1242		ND (64.2) [20]	ND (3.07) [1]	ND (3.09) [1]	ND (3.2) [1]
PCB-1248		ND (75.9) [20]	ND (3.63) [1]	ND (3.66) [1]	ND (3.78) [1]
PCB-1254		ND (30.4) [20]	ND (1.45) [1]	ND (1.47) [1]	ND (1.52) [1]
PCB-1260		1440 (84.4) [20]	80 (4.04) [1]	ND (4.07) [1]	ND (4.21) [1]
Toxaphene		ND (136) [20]	ND (6.48) [1]	ND (6.54) [1]	ND (6.76) [1]
alpha-BHC		ND (6.89) [20]	ND (0.329) [1]	ND (0.332) [1]	ND (0.343) [1]
beta-BHC		ND (9.74) [20]	ND (0.466) [1]	ND (0.47) [1]	ND (0.485) [1]
delta-BHC		ND (5.61) [20]	ND (0.268) [1]	ND (0.271) [1]	ND (0.28) [1]
gamma-BHC		19.8 (4.29) [20]	1.61 P (0.193) [1]	1.66 P (0.195) [1]	1.66 (0.214) [1]
SW8240 - Volatile Organics (ug/kg)					

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: PS LOCATION ID: PS-FS-03 SAMPLE ID: KAL94-PS-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: PS LOCATION ID: PS-FS-04 SAMPLE ID: KAL94-PS-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: PS LOCATION ID: PS-FS-05 SAMPLE ID: KAL94-PS-SS-03 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: PS LOCATION ID: PS-FS-08 SAMPLE ID: KAL94-PS-SS-04 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			
SW8240 - Volatile Organics, cont. (ug/kg)																
1,1,1-Trichloroethane	ND		(1.89)	[1]	ND		(1.83)	[1]	ND		(1.76)	[1]	ND		(1.79)	[1]
1,1,2,2-Tetrachloroethane	ND	Y	(5.07)	[1]	ND		(4.98)	[1]	ND		(4.78)	[1]	ND		(4.86)	[1]
1,1,2-Trichloroethane	ND	Y	(1.53)	[1]	ND		(1.5)	[1]	ND		(1.44)	[1]	ND		(1.46)	[1]
1,1-Dichloroethane	ND		(1.73)	[1]	ND		(1.68)	[1]	ND		(1.62)	[1]	ND		(1.64)	[1]
1,1-Dichloroethene	ND		(2.59)	[1]	ND		(2.52)	[1]	ND		(2.42)	[1]	ND		(2.46)	[1]
1,2-Dichloroethane	ND		(1.76)	[1]	ND		(1.71)	[1]	ND		(1.64)	[1]	ND		(1.66)	[1]
1,2-Dichloropropane	ND		(2.65)	[1]	ND		(2.58)	[1]	ND		(2.47)	[1]	ND		(2.51)	[1]
2-Chloroethyl vinyl ether	ND		(2.89)	[1]	ND		(2.81)	[1]	ND		(2.7)	[1]	ND		(2.74)	[1]
2-Hexanone	ND	Y	(0.959)	[1]	ND		(0.941)	[1]	ND		(0.904)	[1]	ND		(0.918)	[1]
4-Methyl-2-Pentanone(MIBK)	ND		(0.924)	[1]	ND		(0.898)	[1]	ND		(0.863)	[1]	ND		(0.877)	[1]
Acetone	10.2	B	(1.52)	[1]	6.11	B	(1.47)	[1]	4.88	B	(1.42)	[1]	6.5	B	(1.44)	[1]
Benzene	ND		(1.74)	[1]	ND		(1.69)	[1]	ND		(1.63)	[1]	ND		(1.65)	[1]
Bromodichloromethane	ND		(1.65)	[1]	ND		(1.6)	[1]	ND		(1.54)	[1]	ND		(1.56)	[1]
Bromomethane	ND		(2.03)	[1]	ND		(1.97)	[1]	ND		(1.89)	[1]	ND		(1.93)	[1]
Carbon disulfide	ND		(2.62)	[1]	ND		(2.54)	[1]	ND		(2.44)	[1]	ND		(2.48)	[1]
Carbon tetrachloride	ND		(2.02)	[1]	ND		(1.96)	[1]	ND		(1.88)	[1]	ND		(1.91)	[1]
Chlorobenzene	ND	Y	(4.65)	[1]	ND		(4.56)	[1]	ND		(4.38)	[1]	ND		(4.45)	[1]
Chloroethane	ND		(2.07)	[1]	ND		(2.01)	[1]	ND		(1.93)	[1]	ND		(1.96)	[1]
Chloroform	ND		(2.11)	[1]	ND		(2.05)	[1]	ND		(1.97)	[1]	ND		(2)	[1]
Chloromethane	ND		(2.46)	[1]	ND		(2.39)	[1]	ND		(2.3)	[1]	ND		(2.33)	[1]
Dibromochloromethane	ND	Y	(1.83)	[1]	ND		(1.8)	[1]	ND		(1.73)	[1]	ND		(1.76)	[1]
Ethyl benzene	ND	Y	(1.66)	[1]	ND		(1.62)	[1]	ND		(1.56)	[1]	ND		(1.59)	[1]
Methyl ethyl ketone	ND		(1.54)	[1]	ND		(1.5)	[1]	ND		(1.44)	[1]	ND		(1.46)	[1]
Methylene Chloride	1.43	BJ	(2.64)	[1]	1.71	BJ	(2.56)	[1]	1.43	BJ	(2.46)	[1]	1.91	BJ	(2.5)	[1]
Styrene	ND	Y	(1.62)	[1]	ND		(1.59)	[1]	ND		(1.53)	[1]	ND		(1.55)	[1]
Tetrachloroethene	ND	Y	(4.75)	[1]	ND		(4.66)	[1]	ND		(4.48)	[1]	ND		(4.55)	[1]
Toluene	ND		(1.72)	[1]	ND		(1.67)	[1]	ND		(1.6)	[1]	ND		(1.63)	[1]
Tribromomethane(Bromoform)	ND	Y	(1.51)	[1]	ND		(1.48)	[1]	ND		(1.43)	[1]	ND		(1.45)	[1]

Compiled: 26 January 1995

() = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER				SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)										
				PS PS-FS-03 KAL94-PS-SS-01 0 - 0.5			PS PS-FS-04 KAL94-PS-SS-02 0 - 0.5			PS PS-FS-05 KAL94-PS-SS-03 0 - 0.5			PS PS-FS-08 KAL94-PS-SS-04 0 - 0.5		
SW8240 - Volatile Organics, cont.	(ug/kg)													
Trichloroethene		ND		(4.91)	[1]	ND	(4.77)	[1]	ND	(4.58)	[1]	ND	(4.65)	[1]
Vinyl Chloride		ND		(2.09)	[1]	ND	(2.03)	[1]	ND	(1.95)	[1]	ND	(1.98)	[1]
Vinyl acetate		ND		(11.1)	[1]	ND	(10.8)	[1]	ND	(10.3)	[1]	ND	(10.5)	[1]
Xylene (total)		ND	Y	(3.64)	[1]	ND	(3.57)	[1]	ND	(3.43)	[1]	ND	(3.49)	[1]
cis-1,2-Dichloroethene		ND		(1.91)	[1]	ND	(1.86)	[1]	ND	(1.78)	[1]	ND	(1.81)	[1]
cis-1,3-Dichloropropene		ND		(1.62)	[1]	ND	(1.58)	[1]	ND	(1.52)	[1]	ND	(1.54)	[1]
trans-1,2-Dichloroethene		ND		(2.35)	[1]	ND	(2.29)	[1]	ND	(2.2)	[1]	ND	(2.23)	[1]
trans-1,3-Dichloropropene		ND		(1.76)	[1]	ND	(1.71)	[1]	ND	(1.64)	[1]	ND	(1.66)	[1]
SW8270 - Semivolatile Organics	(ug/g)													
1,2,4-Trichlorobenzene		ND		(0.0868)	[10]	ND	(0.0837)	[10]	ND	(0.0081)	[1]	ND	(0.00827)	[1]
1,2-Dichlorobenzene		ND		(0.122)	[10]	ND	(0.117)	[10]	ND	(0.0114)	[1]	ND	(0.0116)	[1]
1,3-Dichlorobenzene		ND		(0.114)	[10]	ND	(0.11)	[10]	ND	(0.0106)	[1]	ND	(0.0108)	[1]
1,4-Dichlorobenzene		ND		(0.193)	[10]	ND	(0.186)	[10]	ND	(0.018)	[1]	ND	(0.0184)	[1]
2,4,5-Trichlorophenol		ND		(0.163)	[10]	ND	(0.157)	[10]	ND	(0.0152)	[1]	ND	(0.0156)	[1]
2,4,6-Trichlorophenol		ND		(0.15)	[10]	ND	(0.145)	[10]	ND	(0.014)	[1]	ND	(0.0143)	[1]
2,4-Dichlorophenol		ND		(0.125)	[10]	ND	(0.121)	[10]	ND	(0.0117)	[1]	ND	(0.0119)	[1]
2,4-Dimethylphenol		ND		(0.502)	[10]	ND	(0.484)	[10]	ND	(0.0468)	[1]	ND	(0.0478)	[1]
2,4-Dinitrophenol		ND		(1.06)	[10]	ND	(1.02)	[10]	ND	(0.0992)	[1]	ND	(0.101)	[1]
2,4-Dinitrotoluene		ND		(0.182)	[10]	ND	(0.175)	[10]	ND	(0.017)	[1]	ND	(0.0173)	[1]
2,6-Dinitrotoluene		ND		(0.154)	[10]	ND	(0.149)	[10]	ND	(0.0144)	[1]	ND	(0.0147)	[1]
2-Chloronaphthalene		ND		(0.249)	[10]	ND	(0.24)	[10]	ND	(0.0232)	[1]	ND	(0.0237)	[1]
2-Chlorophenol		ND		(0.18)	[10]	ND	(0.174)	[10]	ND	(0.0168)	[1]	ND	(0.0171)	[1]
2-Methylnaphthalene		ND		(0.214)	[10]	ND	(0.206)	[10]	ND	(0.0199)	[1]	ND	(0.0204)	[1]
2-Methylphenol		ND		(0.458)	[10]	ND	(0.441)	[10]	ND	(0.0427)	[1]	ND	(0.0436)	[1]
2-Nitroaniline		ND		(0.168)	[10]	ND	(0.162)	[10]	ND	(0.0157)	[1]	ND	(0.016)	[1]
2-Nitrophenol		ND		(0.2)	[10]	ND	(0.193)	[10]	ND	(0.0186)	[1]	ND	(0.019)	[1]
3,3'-Dichlorobenzidine		ND		(0.418)	[10]	ND	(0.403)	[10]	ND	(0.039)	[1]	ND	(0.0398)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)											
	PS PS-FS-03 KAL94-PS-SS-01 0 - 0.5			PS PS-FS-04 KAL94-PS-SS-02 0 - 0.5			PS PS-FS-05 KAL94-PS-SS-03 0 - 0.5			PS PS-FS-08 KAL94-PS-SS-04 0 - 0.5		
SW8270 - Semivolatile Organics, cont. (ug/g)												
3-Nitroaniline	ND	(0.202)	[10]	ND	(0.195)	[10]	ND	(0.0188)	[1]	ND	(0.0192)	[1]
4,6-Dinitro-2-methylphenol	ND	(0.302)	[10]	ND	(0.291)	[10]	ND	(0.0282)	[1]	ND	(0.0288)	[1]
4-Bromophenyl phenyl ether	ND	(0.216)	[10]	ND	(0.208)	[10]	ND	(0.0202)	[1]	ND	(0.0206)	[1]
4-Chloro-3-methylphenol	ND	(0.133)	[10]	ND	(0.129)	[10]	ND	(0.0124)	[1]	ND	(0.0127)	[1]
4-Chlorophenyl phenyl ether	ND	(0.301)	[10]	ND	(0.29)	[10]	ND	(0.028)	[1]	ND	(0.0286)	[1]
4-Methylphenol/3-Methylphenol	ND	(0.414)	[10]	ND	(0.399)	[10]	ND	(0.0386)	[1]	ND	(0.0395)	[1]
4-Nitroaniline	ND	(0.203)	[10]	ND	(0.196)	[10]	ND	(0.0189)	[1]	ND	(0.0193)	[1]
4-Nitrophenol	ND	(0.181)	[10]	ND	(0.175)	[10]	ND	(0.0169)	[1]	ND	(0.0173)	[1]
Acenaphthene	ND	(0.164)	[10]	ND	(0.158)	[10]	ND	(0.0153)	[1]	ND	(0.0156)	[1]
Acenaphthylene	ND	(0.303)	[10]	ND	(0.292)	[10]	ND	(0.0283)	[1]	ND	(0.0289)	[1]
Anthracene	ND	(0.203)	[10]	ND	(0.196)	[10]	ND	(0.0189)	[1]	ND	(0.0193)	[1]
Benzo(a)anthracene	ND	(0.16)	[10]	ND	(0.154)	[10]	ND	(0.0149)	[1]	ND	(0.0152)	[1]
Benzo(a)pyrene	ND	(0.249)	[10]	ND	(0.24)	[10]	ND	(0.0232)	[1]	ND	(0.0237)	[1]
Benzo(b)fluoranthene	ND	(0.391)	[10]	ND	(0.377)	[10]	ND	(0.0365)	[1]	ND	(0.0373)	[1]
Benzo(g,h,i)perylene	ND	(0.173)	[10]	ND	(0.167)	[10]	ND	(0.0162)	[1]	ND	(0.0165)	[1]
Benzo(k)fluoranthene	ND	(0.263)	[10]	ND	(0.253)	[10]	ND	(0.0245)	[1]	ND	(0.025)	[1]
Benzoic acid	ND	(2.4)	[10]	ND	(2.31)	[10]	ND	(0.224)	[1]	ND	(0.229)	[1]
Benzyl alcohol	ND	(0.184)	[10]	ND	(0.177)	[10]	ND	(0.0171)	[1]	ND	(0.0175)	[1]
Butylbenzylphthalate	ND	(0.21)	[10]	ND	(0.203)	[10]	ND	(0.0196)	[1]	ND	(0.02)	[1]
Chrysene	ND	(0.109)	[10]	ND	(0.105)	[10]	ND	(0.0102)	[1]	ND	(0.0104)	[1]
Di-n-octylphthalate	ND	(0.176)	[10]	ND	(0.17)	[10]	ND	(0.0164)	[1]	ND	(0.0168)	[1]
Dibenz(a,h)anthracene	ND	(0.194)	[10]	ND	(0.187)	[10]	ND	(0.0181)	[1]	ND	(0.0184)	[1]
Dibenzofuran	ND	(0.143)	[10]	ND	(0.138)	[10]	ND	(0.0134)	[1]	ND	(0.0137)	[1]
Dibutylphthalate	ND	(0.174)	[10]	ND	(0.168)	[10]	ND	(0.0163)	[1]	ND	(0.0166)	[1]
Diethylphthalate	ND	(0.125)	[10]	ND	(0.121)	[10]	ND	(0.0117)	[1]	ND	(0.012)	[1]
Dimethylphthalate	ND	(0.129)	[10]	ND	(0.124)	[10]	ND	(0.012)	[1]	ND	(0.0123)	[1]
Diphenylamine	ND	(0.296)	[10]	ND	(0.286)	[10]	ND	(0.0276)	[1]	ND	(0.0282)	[1]
Fluoranthene	ND	(0.0673)	[10]	ND	(0.0649)	[10]	ND	(0.00628)	[1]	ND	(0.00641)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)											
	PS PS-FS-03 KAL94-PS-SS-01 0 - 0.5			PS PS-FS-04 KAL94-PS-SS-02 0 - 0.5			PS PS-FS-05 KAL94-PS-SS-03 0 - 0.5			PS PS-FS-08 KAL94-PS-SS-04 0 - 0.5		
SW8270 - Semivolatile Organics, cont. (ug/g)												
Fluorene	ND	(0.113)	[10]	ND	(0.109)	[10]	ND	(0.0105)	[1]	ND	(0.0108)	[1]
Hexachlorobenzene	ND	(0.189)	[10]	ND	(0.182)	[10]	ND	(0.0176)	[1]	ND	(0.018)	[1]
Hexachlorobutadiene	ND	(0.0964)	[10]	ND	(0.0929)	[10]	ND	(0.00899)	[1]	ND	(0.00918)	[1]
Hexachlorocyclopentadiene	ND	(0.653)	[10]	ND	(0.63)	[10]	ND	(0.0609)	[1]	ND	(0.0622)	[1]
Hexachloroethane	ND	(0.098)	[10]	ND	(0.0944)	[10]	ND	(0.00914)	[1]	ND	(0.00933)	[1]
Indeno(1,2,3-cd)pyrene	ND	(0.207)	[10]	ND	(0.199)	[10]	ND	(0.0193)	[1]	ND	(0.0197)	[1]
Isophorone	ND	(0.147)	[10]	ND	(0.142)	[10]	ND	(0.0137)	[1]	ND	(0.014)	[1]
N-Nitroso-di-n-propylamine	ND	(0.227)	[10]	ND	(0.218)	[10]	ND	(0.0211)	[1]	ND	(0.0216)	[1]
Naphthalene	ND	(0.25)	[10]	ND	(0.241)	[10]	ND	(0.0233)	[1]	ND	(0.0238)	[1]
Nitrobenzene	ND	(0.129)	[10]	ND	(0.125)	[10]	ND	(0.0121)	[1]	ND	(0.0123)	[1]
Pentachlorophenol	ND	(0.0721)	[10]	ND	(0.0695)	[10]	ND	(0.00672)	[1]	ND	(0.00687)	[1]
Phenanthrene	ND	(0.149)	[10]	ND	(0.144)	[10]	ND	(0.0139)	[1]	ND	(0.0142)	[1]
Phenol	ND	(0.213)	[10]	ND	(0.205)	[10]	ND	(0.0199)	[1]	ND	(0.0203)	[1]
Pyrene	ND	(0.0972)	[10]	ND	(0.0937)	[10]	ND	(0.00906)	[1]	ND	(0.00926)	[1]
bis(2-Chloroethoxy)methane	ND	(0.11)	[10]	ND	(0.106)	[10]	ND	(0.0103)	[1]	ND	(0.0105)	[1]
bis(2-Chloroethyl)ether	ND	(0.158)	[10]	ND	(0.152)	[10]	ND	(0.0147)	[1]	ND	(0.0151)	[1]
bis(2-Chloroisopropyl)ether	ND	(0.173)	[10]	ND	(0.167)	[10]	ND	(0.0161)	[1]	ND	(0.0165)	[1]
bis(2-Ethylhexyl)phthalate	ND	(0.705)	[10]	ND	(0.679)	[10]	ND	(0.0657)	[1]	ND	(0.0671)	[1]
p-Chloroaniline	ND	(0.237)	[10]	ND	(0.228)	[10]	ND	(0.0221)	[1]	ND	(0.0226)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: SO LOCATION ID: SO-SS-01 SAMPLE ID: KAL94-SO-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: TD LOCATION ID: TD-FS-05 SAMPLE ID: KAL94-TD-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: TD LOCATION ID: TD-FS-06 SAMPLE ID: KAL94-TD-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: TG LOCATION ID: TG-FS-06 SAMPLE ID: KAL94-TG-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			
AK101 - Gasoline Range Organics (mg/kg)																
Gasoline Range Organics	0	J	(1)	[1]	0	J	(1)	[1]	3	J	(5)	[5]	0	J	(5)	[5]
AK102 - Diesel Range Organics (mg/kg)																
Diesel Range Organics	1400		(40)	[10]	270		(20)	[5]	23		(4)	[1]	7		(4)	[1]
SW8080 - Organochlorine Pesticides and PCBs (ug/kg)																
4,4'-DDD	NA		(578)	[200]	NA				NA				NA			
4,4'-DDE	2050	W	(138)	[200]	NA				NA				NA			
4,4'-DDT	NA		(484)	[200]	NA				NA				NA			
Aldrin	ND		(152)	[200]	NA				NA				NA			
Chlordane	ND		(738)	[200]	NA				NA				NA			
Dieldrin	1950	W	(151)	[200]	NA				NA				NA			
Endosulfan I	ND		(166)	[200]	NA				NA				NA			
Endosulfan II	NA		(77.5)	[200]	NA				NA				NA			
Endosulfan Sulfate	ND		(184)	[200]	NA				NA				NA			
Endrin	ND		(205)	[200]	NA				NA				NA			
Endrin Aldehyde	NA		(220)	[200]	NA				NA				NA			
Heptachlor	ND		(201)	[200]	NA				NA				NA			
Heptachlor epoxide	539	P	(69.8)	[200]	NA				NA				NA			
Methoxychlor	NA		(2280)	[200]	NA				NA				NA			
PCB-1016	ND		(1190)	[200]	NA				NA				NA			
PCB-1221	ND		(1070)	[200]	NA				NA				NA			
PCB-1232	ND		(2700)	[200]	NA				NA				NA			
PCB-1242	ND		(989)	[200]	NA				NA				NA			
PCB-1248	ND		(1170)	[200]	NA				NA				NA			
PCB-1254	ND		(469)	[200]	NA				NA				NA			
PCB-1260	131000		(1300)	[200]	NA				NA				NA			
Toxaphene	ND		(2090)	[200]	NA				NA				NA			

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)											
	SO SO-SS-01 KAL94-SO-SS-01 0 - 0.5				TD TD-FS-05 KAL94-TD-SS-01 0 - 0.5		TD TD-FS-06 KAL94-TD-SS-02 0 - 0.5		TG TG-FS-06 KAL94-TG-SS-01 0 - 0.5			
SW8080 - Organochlorine Pesticides and PCBs, cont. (ug/kg)												
alpha-BHC	ND		(106)	[200]	NA		NA		NA			
beta-BHC	ND		(150)	[200]	NA		NA		NA			
delta-BHC	ND		(31.6)	[200]	NA		NA		NA			
gamma-BHC	ND		(66.2)	[200]	NA		NA		NA			
SW8240 - Volatile Organics (ug/kg)												
1,1,1-Trichloroethane	ND		(2.91)	[1]	NA		NA		NA			
1,1,2,2-Tetrachloroethane	ND	Y	(7.9)	[1]	NA		NA		NA			
1,1,2-Trichloroethane	ND	Y	(2.38)	[1]	NA		NA		NA			
1,1-Dichloroethane	ND		(2.67)	[1]	NA		NA		NA			
1,1-Dichloroethene	3.52	J	(4)	[1]	NA		NA		NA			
1,2-Dichloroethane	ND		(2.71)	[1]	NA		NA		NA			
1,2-Dichloropropane	ND		(4.09)	[1]	NA		NA		NA			
2-Chloroethyl vinyl ether	ND		(4.46)	[1]	NA		NA		NA			
2-Hexanone	ND	Y	(1.49)	[1]	NA		NA		NA			
4-Methyl-2-Pentanone(MIBK)	ND		(1.43)	[1]	NA		NA		NA			
Acetone	20.6	B	(2.34)	[1]	NA		NA		NA			
Benzene	ND		(2.69)	[1]	NA		NA		NA			
Bromodichloromethane	ND		(2.54)	[1]	NA		NA		NA			
Bromomethane	ND		(3.13)	[1]	NA		NA		NA			
Carbon disulfide	ND		(4.03)	[1]	NA		NA		NA			
Carbon tetrachloride	ND		(3.11)	[1]	NA		NA		NA			
Chlorobenzene	ND	Y	(7.24)	[1]	NA		NA		NA			
Chloroethane	ND		(3.19)	[1]	NA		NA		NA			
Chloroform	ND		(3.26)	[1]	NA		NA		NA			
Chloromethane	ND		(3.79)	[1]	NA		NA		NA			
Dibromochloromethane	ND	Y	(2.85)	[1]	NA		NA		NA			
Ethyl benzene	ND	Y	(2.58)	[1]	NA		NA		NA			

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID / LOCATION ID / SAMPLE ID / BEG. DEPTH - END DEPTH (FT.)						
	SO SO-SS-01 KAL94-SO-SS-01 0 - 0.5				TD TD-FS-05 KAL94-TD-SS-01 0 - 0.5	TD TD-FS-06 KAL94-TD-SS-02 0 - 0.5	TG TG-FS-06 KAL94-TG-SS-01 0 - 0.5
SW8240 - Volatile Organics, cont. (ug/kg)							
Methyl ethyl ketone	ND		(2.38)	[1]	NA	NA	NA
Methylene Chloride	4.42	B	(4.07)	[1]	NA	NA	NA
Styrene	ND	Y	(2.52)	[1]	NA	NA	NA
Tetrachloroethene	ND	Y	(7.4)	[1]	NA	NA	NA
Toluene	ND		(2.65)	[1]	NA	NA	NA
Tribromomethane(Bromoform)	ND	Y	(2.36)	[1]	NA	NA	NA
Trichloroethene	ND		(7.57)	[1]	NA	NA	NA
Vinyl Chloride	ND		(3.22)	[1]	NA	NA	NA
Vinyl acetate	ND		(17.1)	[1]	NA	NA	NA
Xylene (total)	ND	Y	(5.67)	[1]	NA	NA	NA
cis-1,2-Dichloroethene	ND		(2.95)	[1]	NA	NA	NA
cis-1,3-Dichloropropene	ND		(2.5)	[1]	NA	NA	NA
trans-1,2-Dichloroethene	ND		(3.63)	[1]	NA	NA	NA
trans-1,3-Dichloropropene	ND		(2.71)	[1]	NA	NA	NA
SW8270 - Semivolatile Organics (ug/g)							
1,2,4-Trichlorobenzene	ND		(0.67)	[10]	NA	NA	NA
1,2-Dichlorobenzene	ND		(0.94)	[10]	NA	NA	NA
1,3-Dichlorobenzene	ND		(0.879)	[10]	NA	NA	NA
1,4-Dichlorobenzene	ND		(1.49)	[10]	NA	NA	NA
2,4,5-Trichlorophenol	ND		(1.26)	[10]	NA	NA	NA
2,4,6-Trichlorophenol	ND		(1.16)	[10]	NA	NA	NA
2,4-Dichlorophenol	ND		(0.965)	[10]	NA	NA	NA
2,4-Dimethylphenol	ND		(3.87)	[10]	NA	NA	NA
2,4-Dinitrophenol	ND		(8.2)	[10]	NA	NA	NA
2,4-Dinitrotoluene	ND		(1.4)	[10]	NA	NA	NA
2,6-Dinitrotoluene	ND		(1.19)	[10]	NA	NA	NA
2-Chloronaphthalene	ND		(1.92)	[10]	NA	NA	NA

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID	SO			TD	TD	TG
	LOCATION ID	SO			TD	TD	TG
	SAMPLE ID	SO-SS-01			TD-FS-05	TD-FS-06	TG-FS-06
		KAL94-SO-SS-01			KAL94-TD-SS-01	KAL94-TD-SS-02	KAL94-TG-SS-01
	BEG. DEPTH - END DEPTH (FT.)	0 - 0.5			0 - 0.5	0 - 0.5	0 - 0.5
SW8270 - Semivolatile Organics, cont.	(ug/g)						
2-Chlorophenol		ND	(1.39)	[10]	NA	NA	NA
2-Methylnaphthalene		ND	(1.65)	[10]	NA	NA	NA
2-Methylphenol		ND	(3.53)	[10]	NA	NA	NA
2-Nitroaniline		ND	(1.3)	[10]	NA	NA	NA
2-Nitrophenol		ND	(1.54)	[10]	NA	NA	NA
3,3'-Dichlorobenzidine		ND	(3.23)	[10]	NA	NA	NA
3-Nitroaniline		ND	(1.56)	[10]	NA	NA	NA
4,6-Dinitro-2-methylphenol		ND	(2.33)	[10]	NA	NA	NA
4-Bromophenyl phenyl ether		ND	(1.67)	[10]	NA	NA	NA
4-Chloro-3-methylphenol		ND	(1.03)	[10]	NA	NA	NA
4-Chlorophenyl phenyl ether		ND	(2.32)	[10]	NA	NA	NA
4-Methylphenol/3-Methylphenol		ND	(3.2)	[10]	NA	NA	NA
4-Nitroaniline		ND	(1.57)	[10]	NA	NA	NA
4-Nitrophenol		ND	(1.4)	[10]	NA	NA	NA
Acenaphthene		ND	(1.26)	[10]	NA	NA	NA
Acenaphthylene		ND	(2.34)	[10]	NA	NA	NA
Anthracene		ND	(1.57)	[10]	NA	NA	NA
Benzo(a)anthracene		ND	(1.23)	[10]	NA	NA	NA
Benzo(a)pyrene		ND	(1.92)	[10]	NA	NA	NA
Benzo(b)fluoranthene		0.983 FJ	(3.02)	[10]	NA	NA	NA
Benzo(g,h,i)perylene		ND	(1.34)	[10]	NA	NA	NA
Benzo(k)fluoranthene		0.983 FJ	(2.03)	[10]	NA	NA	NA
Benzoic acid		ND	(18.5)	[10]	NA	NA	NA
Benzyl alcohol		ND	(1.42)	[10]	NA	NA	NA
Butylbenzylphthalate		ND	(1.62)	[10]	NA	NA	NA
Chrysene		ND	(0.842)	[10]	NA	NA	NA
Di-n-octylphthalate		ND	(1.36)	[10]	NA	NA	NA
Dibenz(a,h)anthracene		ND	(1.49)	[10]	NA	NA	NA

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: SO LOCATION ID: SO-SS-01 SAMPLE ID: KAL94-SO-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			SITE ID: TD LOCATION ID: TD-FS-05 SAMPLE ID: KAL94-TD-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5	SITE ID: TD LOCATION ID: TD-FS-06 SAMPLE ID: KAL94-TD-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5	SITE ID: TG LOCATION ID: TG-FS-06 SAMPLE ID: KAL94-TG-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5
SW8270 - Semivolatile Organics, cont. (ug/g)						
Dibenzofuran	ND	(1.11)	[10]	NA	NA	NA
Dibutylphthalate	ND	(1.35)	[10]	NA	NA	NA
Diethylphthalate	ND	(0.968)	[10]	NA	NA	NA
Dimethylphthalate	ND	(0.993)	[10]	NA	NA	NA
Diphenylamine	ND	(2.29)	[10]	NA	NA	NA
Fluoranthene	ND	(0.519)	[10]	NA	NA	NA
Fluorene	ND	(0.873)	[10]	NA	NA	NA
Hexachlorobenzene	ND	(1.46)	[10]	NA	NA	NA
Hexachlorobutadiene	ND	(0.744)	[10]	NA	NA	NA
Hexachlorocyclopentadiene	ND	(5.04)	[10]	NA	NA	NA
Hexachloroethane	ND	(0.756)	[10]	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ND	(1.59)	[10]	NA	NA	NA
Isophorone	ND	(1.13)	[10]	NA	NA	NA
N-Nitroso-di-n-propylamine	ND	(1.75)	[10]	NA	NA	NA
Naphthalene	ND	(1.93)	[10]	NA	NA	NA
Nitrobenzene	ND	(0.999)	[10]	NA	NA	NA
Pentachlorophenol	ND	(0.556)	[10]	NA	NA	NA
Phenanthrene	ND	(1.15)	[10]	NA	NA	NA
Phenol	ND	(1.64)	[10]	NA	NA	NA
Pyrene	ND	(0.75)	[10]	NA	NA	NA
bis(2-Chloroethoxy)methane	ND	(0.848)	[10]	NA	NA	NA
bis(2-Chloroethyl)ether	ND	(1.22)	[10]	NA	NA	NA
bis(2-Chloroisopropyl)ether	ND	(1.33)	[10]	NA	NA	NA
bis(2-Ethylhexyl)phthalate	7.87	(5.44)	[10]	NA	NA	NA
p-Chloroaniline	ND	(1.83)	[10]	NA	NA	NA

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID / LOCATION ID / SAMPLE ID / BEG. DEPTH - END DEPTH (FT.)															
	VM VM-FS-01 KAL94-VM-SS-01 0 - 0.5				VM VM-FS-03 KAL94-VM-SS-02 0 - 0.5				VM VM-FS-06 KAL94-VM-SS-03 0 - 0.5				VM VM-FS-08 KAL94-VM-SS-04 0 - 0.5			
AK101 - Gasoline Range Organics (mg/kg)																
Gasoline Range Organics	0	J	(1)	[1]	0	J	(1)	[1]	0	J	(1)	[1]	0	J	(1)	[1]
AK102 - Diesel Range Organics (mg/kg)																
Diesel Range Organics	23000		(400)	[100]	900		(20)	[5]	8700		(200)	[50]	7300		(400)	[100]
SW8240 - Volatile Organics (ug/kg)																
1,1,1-Trichloroethane	ND		(1.74)	[1]	ND		(1.78)	[1]	ND		(2.04)	[1]	ND		(1.83)	[1]
1,1,2,2-Tetrachloroethane	ND	Y	(4.72)	[1]	ND	Y	(4.84)	[1]	ND		(5.55)	[1]	ND	Y	(4.92)	[1]
1,1,2-Trichloroethane	ND	Y	(1.42)	[1]	ND	Y	(1.46)	[1]	ND		(1.67)	[1]	ND	Y	(1.48)	[1]
1,1-Dichloroethane	ND		(1.6)	[1]	ND		(1.64)	[1]	ND		(1.88)	[1]	ND		(1.68)	[1]
1,1-Dichloroethene	ND		(2.39)	[1]	ND		(0.45)	[1]	ND		(2.81)	[1]	ND		(2.51)	[1]
1,2-Dichloroethane	ND		(1.62)	[1]	ND		(1.66)	[1]	ND		(1.9)	[1]	ND		(1.7)	[1]
1,2-Dichloropropane	ND	Y	(2.44)	[1]	ND		(2.51)	[1]	ND		(2.87)	[1]	ND	Y	(2.54)	[1]
2-Chloroethyl vinyl ether	ND	Y	(2.67)	[1]	ND		(2.73)	[1]	ND		(3.13)	[1]	ND	Y	(2.77)	[1]
2-Hexanone	ND	Y	(0.893)	[1]	ND	Y	(0.916)	[1]	ND		(1.05)	[1]	ND	Y	(0.93)	[1]
4-Methyl-2-Pentanone(MIBK)	ND	Y	(0.852)	[1]	ND		(0.874)	[1]	ND		(1)	[1]	ND	Y	(0.887)	[1]
Acetone	17.5	B	(1.4)	[1]	8.22	B	(1.43)	[1]	4.49	B	(1.64)	[1]	17.5	B	(1.47)	[1]
Benzene	ND	Y	(1.61)	[1]	ND		(1.65)	[1]	ND		(1.89)	[1]	ND	Y	(1.67)	[1]
Bromodichloromethane	ND	Y	(1.52)	[1]	ND		(1.56)	[1]	ND		(1.79)	[1]	ND	Y	(1.58)	[1]
Bromomethane	ND		(1.87)	[1]	ND		(1.92)	[1]	ND		(2.2)	[1]	ND		(1.96)	[1]
Carbon disulfide	ND		(2.41)	[1]	ND		(2.47)	[1]	ND		(2.83)	[1]	ND		(2.53)	[1]
Carbon tetrachloride	ND	Y	(1.86)	[1]	ND		(1.91)	[1]	ND		(2.19)	[1]	ND	Y	(1.94)	[1]
Chlorobenzene	ND	Y	(4.33)	[1]	ND	Y	(4.44)	[1]	ND		(5.09)	[1]	ND	Y	(4.5)	[1]
Chloroethane	ND		(1.91)	[1]	ND		(1.95)	[1]	ND		(2.24)	[1]	ND		(2)	[1]
Chloroform	ND		(1.95)	[1]	ND		(2)	[1]	ND		(2.29)	[1]	ND		(2.05)	[1]
Chloromethane	ND		(2.27)	[1]	ND		(2.33)	[1]	ND		(2.67)	[1]	ND		(2.38)	[1]
Dibromochloromethane	ND	Y	(1.71)	[1]	ND	Y	(1.75)	[1]	ND		(2.01)	[1]	ND	Y	(1.78)	[1]
Ethyl benzene	ND	Y	(1.54)	[1]	ND	Y	(1.58)	[1]	ND		(1.81)	[1]	ND	Y	(1.6)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: VM LOCATION ID: VM-FS-01 SAMPLE ID: KAL94-VM-SS-01 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: VM LOCATION ID: VM-FS-03 SAMPLE ID: KAL94-VM-SS-02 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: VM LOCATION ID: VM-FS-06 SAMPLE ID: KAL94-VM-SS-03 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5				SITE ID: VM LOCATION ID: VM-FS-08 SAMPLE ID: KAL94-VM-SS-04 BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			
SW8240 - Volatile Organics, cont. (ug/kg)																
Methyl ethyl ketone	ND		(1.42)	[1]	ND		(1.46)	[1]	ND		(1.67)	[1]	ND		(1.49)	[1]
Methylene Chloride	4.57	B	(2.43)	[1]	4.03	B	(2.5)	[1]	3.95	B	(2.86)	[1]	4.41	B	(2.55)	[1]
Styrene	ND	Y	(1.51)	[1]	ND	Y	(1.55)	[1]	ND		(1.77)	[1]	ND	Y	(1.57)	[1]
Tetrachloroethene	ND	Y	(4.43)	[1]	ND	Y	(4.54)	[1]	ND		(5.2)	[1]	ND	Y	(4.61)	[1]
Toluene	ND	Y	(1.59)	[1]	ND		(1.63)	[1]	ND		(1.86)	[1]	ND	Y	(1.65)	[1]
Tribromomethane(Bromoform)	ND	Y	(1.41)	[1]	ND	Y	(1.45)	[1]	ND		(1.66)	[1]	ND	Y	(1.47)	[1]
Trichloroethene	ND	Y	(4.53)	[1]	ND		(4.64)	[1]	ND		(5.32)	[1]	ND	Y	(4.71)	[1]
Vinyl Chloride	ND		(1.93)	[1]	ND		(1.98)	[1]	ND		(2.26)	[1]	ND		(2.02)	[1]
Vinyl acetate	ND		(10.2)	[1]	ND		(10.5)	[1]	ND		(12)	[1]	ND		(10.7)	[1]
Xylene (total)	ND	Y	(3.39)	[1]	ND	Y	(3.48)	[1]	ND		(3.99)	[1]	ND	Y	(3.53)	[1]
cis-1,2-Dichloroethene	ND		(1.76)	[1]	ND		(1.81)	[1]	ND		(2.07)	[1]	ND		(1.85)	[1]
cis-1,3-Dichloropropene	ND	Y	(1.5)	[1]	ND		(1.54)	[1]	ND		(1.76)	[1]	ND	Y	(1.56)	[1]
trans-1,2-Dichloroethene	ND		(2.17)	[1]	ND		(2.22)	[1]	ND		(2.55)	[1]	ND		(2.28)	[1]
trans-1,3-Dichloropropene	ND	Y	(1.62)	[1]	ND		(1.66)	[1]	ND		(1.9)	[1]	ND	Y	(1.68)	[1]
SW8270 - Semivolatile Organics (ug/g)																
1,2,4-Trichlorobenzene	ND		(0.213)	[10]	ND		(0.216)	[10]	ND		(0.00837)	[1]	ND		(0.022)	[1]
1,2-Dichlorobenzene	ND		(0.712)	[10]	ND		(0.72)	[10]	ND		(0.028)	[1]	ND		(0.0734)	[1]
1,3-Dichlorobenzene	ND		(0.791)	[10]	ND		(0.8)	[10]	ND		(0.0311)	[1]	ND		(0.0815)	[1]
1,4-Dichlorobenzene	ND		(0.786)	[10]	ND		(0.794)	[10]	ND		(0.0308)	[1]	ND		(0.081)	[1]
2,4,5-Trichlorophenol	ND		(0.651)	[10]	ND		(0.658)	[10]	ND		(0.0256)	[1]	ND		(0.0671)	[1]
2,4,6-Trichlorophenol	ND		(0.539)	[10]	ND		(0.545)	[10]	ND		(0.0212)	[1]	ND		(0.0555)	[1]
2,4-Dichlorophenol	ND		(0.646)	[10]	ND		(0.653)	[10]	ND		(0.0253)	[1]	ND		(0.0665)	[1]
2,4-Dimethylphenol	ND		(1.41)	[10]	ND		(1.43)	[10]	ND		(0.0554)	[1]	ND		(0.145)	[1]
2,4-Dinitrophenol	ND		(2.88)	[10]	ND		(2.91)	[10]	ND		(0.113)	[1]	ND		(0.297)	[1]
2,4-Dinitrotoluene	ND		(0.855)	[10]	ND		(0.864)	[10]	ND		(0.0335)	[1]	ND		(0.0881)	[1]
2,6-Dinitrotoluene	ND		(1.17)	[10]	ND		(1.18)	[10]	ND		(0.0458)	[1]	ND		(0.12)	[1]
2-Chloronaphthalene	ND		(0.999)	[10]	ND		(1.01)	[10]	ND		(0.0392)	[1]	ND		(0.103)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: VM			VM			VM			VM		
	LOCATION ID: VM-FS-01			VM-FS-03			VM-FS-06			VM-FS-08		
	SAMPLE ID: KAL94-VM-SS-01			KAL94-VM-SS-02			KAL94-VM-SS-03			KAL94-VM-SS-04		
	BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			0 - 0.5			0 - 0.5			0 - 0.5		
SW8270 - Semivolatile Organics, cont. (ug/g)												
2-Chlorophenol	ND	(0.364)	[10]	ND	(0.368)	[10]	ND	(0.0143)	[1]	ND	(0.0376)	[1]
2-Methylnaphthalene	ND	(0.672)	[10]	ND	(0.68)	[10]	ND	(0.0264)	[1]	ND	(0.0693)	[1]
2-Methylphenol	ND	(0.878)	[10]	ND	(0.887)	[10]	ND	(0.0345)	[1]	ND	(0.0905)	[1]
2-Nitroaniline	ND	(0.888)	[10]	ND	(0.898)	[10]	ND	(0.0348)	[1]	ND	(0.0915)	[1]
2-Nitrophenol	ND	(0.472)	[10]	ND	(0.477)	[10]	ND	(0.0185)	[1]	ND	(0.0487)	[1]
3,3'-Dichlorobenzidine	ND	(1.21)	[10]	ND	(1.22)	[10]	ND	(0.0475)	[1]	ND	(0.125)	[1]
3-Nitroaniline	ND	(0.358)	[10]	ND	(0.362)	[10]	ND	(0.014)	[1]	ND	(0.0369)	[1]
4,6-Dinitro-2-methylphenol	ND	(0.812)	[10]	ND	(0.821)	[10]	ND	(0.0319)	[1]	ND	(0.0837)	[1]
4-Bromophenyl phenyl ether	ND	(0.678)	[10]	ND	(0.685)	[10]	ND	(0.0266)	[1]	ND	(0.0698)	[1]
4-Chloro-3-methylphenol	ND	(0.509)	[10]	ND	(0.515)	[10]	ND	(0.02)	[1]	ND	(0.0524)	[1]
4-Chlorophenyl phenyl ether	ND	(0.813)	[10]	ND	(0.822)	[10]	ND	(0.0319)	[1]	ND	(0.0838)	[1]
4-Methylphenol/3-Methylphenol	ND	(1.38)	[10]	ND	(1.39)	[10]	ND	(0.0541)	[1]	ND	(0.142)	[1]
4-Nitroaniline	ND	(0.666)	[10]	ND	(0.673)	[10]	ND	(0.0261)	[1]	ND	(0.0686)	[1]
4-Nitrophenol	ND	(0.701)	[10]	ND	(0.709)	[10]	ND	(0.0275)	[1]	ND	(0.0722)	[1]
Acenaphthene	ND	(0.536)	[10]	ND	(0.541)	[10]	ND	(0.021)	[1]	ND	(0.0552)	[1]
Acenaphthylene	ND	(0.731)	[10]	ND	(0.739)	[10]	ND	(0.0287)	[1]	ND	(0.0753)	[1]
Anthracene	ND	(0.599)	[10]	ND	(0.606)	[10]	ND	(0.0235)	[1]	ND	(0.0617)	[1]
Benzo(a)anthracene	ND	(0.387)	[10]	ND	(0.391)	[10]	0.048	(0.0152)	[1]	ND	(0.0398)	[1]
Benzo(a)pyrene	ND	(0.6)	[10]	ND	(0.607)	[10]	0.0475	(0.0236)	[1]	ND V	(0.0618)	[1]
Benzo(b)fluoranthene	ND	(1.07)	[10]	ND	(1.08)	[10]	0.339 F	(0.0418)	[1]	ND V	(0.11)	[1]
Benzo(g,h,i)perylene	ND	(0.616)	[10]	ND	(0.622)	[10]	0.241	(0.0242)	[1]	ND V	(0.0634)	[1]
Benzo(k)fluoranthene	ND	(0.911)	[10]	ND	(0.921)	[10]	0.339 F	(0.0358)	[1]	ND V	(0.0939)	[1]
Benzoic acid	ND	(3.32)	[10]	ND	(3.36)	[10]	ND	(0.13)	[1]	ND	(0.342)	[1]
Benzyl alcohol	ND	(1.6)	[10]	ND	(1.62)	[10]	ND	(0.0628)	[1]	ND	(0.165)	[1]
Butylbenzylphthalate	ND	(0.835)	[10]	ND	(0.844)	[10]	ND	(0.0328)	[1]	ND	(0.086)	[1]
Chrysene	ND	(0.65)	[10]	ND	(0.657)	[10]	0.113	(0.0255)	[1]	ND	(0.067)	[1]
Di-n-octylphthalate	ND	(0.647)	[10]	ND	(0.654)	[10]	ND	(0.0254)	[1]	ND V	(0.0666)	[1]
Dibenz(a,h)anthracene	ND	(0.759)	[10]	ND	(0.767)	[10]	ND	(0.0298)	[1]	ND V	(0.0782)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1

RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	VM VM-FS-01 KAL94-VM-SS-01 0 - 0.5			VM VM-FS-03 KAL94-VM-SS-02 0 - 0.5			VM VM-FS-06 KAL94-VM-SS-03 0 - 0.5			VM VM-FS-08 KAL94-VM-SS-04 0 - 0.5		
SW8270 - Semivolatile Organics, cont. (ug/g)												
Dibenzofuran	ND	(0.434)	[10]	ND	(0.439)	[10]	ND	(0.0171)	[1]	ND	(0.0448)	[1]
Dibutylphthalate	ND	(0.344)	[10]	ND	(0.348)	[10]	ND	(0.0135)	[1]	0.0641	(0.0355)	[1]
Diethylphthalate	ND	(0.411)	[10]	ND	(0.416)	[10]	ND	(0.0161)	[1]	ND	(0.0424)	[1]
Dimethylphthalate	ND	(0.523)	[10]	ND	(0.529)	[10]	ND	(0.0205)	[1]	ND	(0.0539)	[1]
Diphenylamine	ND	(0.849)	[10]	ND	(0.858)	[10]	ND	(0.0333)	[1]	ND	(0.0875)	[1]
Fluoranthene	ND	(0.472)	[10]	ND	(0.477)	[10]	0.0959	(0.0185)	[1]	ND	(0.0487)	[1]
Fluorene	ND	(0.383)	[10]	ND	(0.388)	[10]	ND	(0.015)	[1]	ND	(0.0395)	[1]
Hexachlorobenzene	ND	(0.587)	[10]	ND	(0.593)	[10]	ND	(0.023)	[1]	ND	(0.0605)	[1]
Hexachlorobutadiene	ND	(0.73)	[10]	ND	(0.738)	[10]	ND	(0.0287)	[1]	ND	(0.0752)	[1]
Hexachlorocyclopentadiene	ND	(1.82)	[10]	ND	(1.84)	[10]	ND	(0.0715)	[1]	ND	(0.188)	[1]
Hexachloroethane	ND	(1.11)	[10]	ND	(1.12)	[10]	ND	(0.0436)	[1]	ND	(0.115)	[1]
Indeno(1,2,3-cd)pyrene	ND	(0.535)	[10]	ND	(0.54)	[10]	0.117	(0.021)	[1]	ND V	(0.0551)	[1]
Isophorone	ND	(0.336)	[10]	ND	(0.339)	[10]	ND	(0.0132)	[1]	ND	(0.0346)	[1]
N-Nitroso-di-n-propylamine	ND	(0.872)	[10]	ND	(0.882)	[10]	ND	(0.0342)	[1]	ND	(0.0899)	[1]
Naphthalene	ND	(0.742)	[10]	ND	(0.75)	[10]	ND	(0.0291)	[1]	ND	(0.0765)	[1]
Nitrobenzene	ND	(0.432)	[10]	ND	(0.437)	[10]	ND	(0.017)	[1]	ND	(0.0445)	[1]
Pentachlorophenol	ND	(0.213)	[10]	ND	(0.216)	[10]	ND	(0.00837)	[1]	ND	(0.022)	[1]
Phenanthrene	ND	(0.616)	[10]	ND	(0.622)	[10]	0.0195 J	(0.0242)	[1]	ND	(0.0634)	[1]
Phenol	0.69 J	(1.12)	[10]	ND	(1.13)	[10]	ND	(0.044)	[1]	ND	(0.116)	[1]
Pyrene	0.449 J	(0.513)	[10]	ND	(0.519)	[10]	0.107	(0.0201)	[1]	0.573	(0.0529)	[1]
bis(2-Chloroethoxy)methane	ND	(0.371)	[10]	ND	(0.375)	[10]	ND	(0.0146)	[1]	ND	(0.0382)	[1]
bis(2-Chloroethyl)ether	ND	(0.518)	[10]	ND	(0.524)	[10]	ND	(0.0203)	[1]	ND	(0.0534)	[1]
bis(2-Chloroisopropyl)ether	ND	(0.635)	[10]	ND	(0.641)	[10]	ND	(0.0249)	[1]	ND	(0.0654)	[1]
bis(2-Ethylhexyl)phthalate	ND	(1.82)	[10]	ND	(1.84)	[10]	ND	(0.0715)	[1]	5.13	(0.188)	[1]
p-Chloroaniline	ND	(1.09)	[10]	ND	(1.1)	[10]	ND	(0.0427)	[1]	ND	(0.112)	[1]

Compiled: 26 January 1995

() = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B1 RESULTS OF ORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)			
	WP WP-FS-01 KAL94-WP-SS-01 0 - 0.5			
AK101 - Gasoline Range Organics (mg/kg)				
Gasoline Range Organics	4	J	(1)	[1]
AK102 - Diesel Range Organics (mg/kg)				
Diesel Range Organics	7100		(400)	[100]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B2 RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID				SITE ID				SITE ID				SITE ID			
	LOCATION ID				LOCATION ID				LOCATION ID				LOCATION ID			
	SAMPLE ID				SAMPLE ID				SAMPLE ID				SAMPLE ID			
	BEG. DEPTH - END DEPTH (FT.)				BEG. DEPTH - END DEPTH (FT.)				BEG. DEPTH - END DEPTH (FT.)				BEG. DEPTH - END DEPTH (FT.)			
	AM				AM				AM				AM			
	AM-SS-01				AM-SS-02				AM-SS-03				AM-SS-04			
	KAL94-AM-SS-01				KAL94-AM-SS-02				KAL94-AM-SS-03				KAL94-AM-SS-04			
	0 - 0.5				0 - 0.5				0 - 0.5				0 - 0.5			
ASTMD2216 - Modified (percent)																
Percent moisture	15.7		(0)	[1]	17.3		(0)	[1]	62.4		(0)	[1]	31		(0)	[1]
SW6010 - Metals (mg/kg)																
Aluminum	24200		(2.5)	[1]	23200		(2.8)	[1]	7350		(6.22)	[1]	23200		(3.39)	[1]
Antimony	0.679	BJ	(5.31)	[1]	3.48	BJ	(5.96)	[1]	-0.216	BJ	(13.2)	[1]	-10.7	BJ	(7.2)	[1]
Arsenic	-7.2	BJ	(3.14)	[1]	29.7		(3.53)	[1]	-4.78	BJ	(7.82)	[1]	-8.49	BJ	(4.26)	[1]
Barium	227		(0.0631)	[1]	191		(0.0708)	[1]	218		(0.157)	[1]	256		(0.0856)	[1]
Beryllium	0.676	B	(0.0298)	[1]	0.575	B	(0.0334)	[1]	0.453	B	(0.0742)	[1]	0.464	B	(0.0404)	[1]
Cadmium	-0.712	BJ	(0.337)	[1]	-0.00813	BJ	(0.379)	[1]	-0.00676	BJ	(0.84)	[1]	-0.0897	BJ	(0.458)	[1]
Calcium	10600		(1.24)	[1]	8630		(1.39)	[1]	4450		(3.08)	[1]	5990		(1.68)	[1]
Chromium	42.3		(0.178)	[1]	39.5		(0.2)	[1]	19		(0.443)	[1]	56.2		(0.242)	[1]
Cobalt	21.2		(0.487)	[1]	24.6		(0.547)	[1]	15.9		(1.21)	[1]	40.1		(0.661)	[1]
Copper	90.1		(0.455)	[1]	76.2		(0.51)	[1]	23.1		(1.13)	[1]	56.7		(0.617)	[1]
Iron	35200		(0.461)	[1]	36200		(0.517)	[1]	16200		(1.15)	[1]	41000		(0.625)	[1]
Lead	9.27		(1.92)	[1]	9.47		(2.16)	[1]	0.789	J	(4.78)	[1]	15.3		(2.61)	[1]
Magnesium	9650		(8.72)	[1]	9730		(9.79)	[1]	1900		(21.7)	[1]	7410		(11.8)	[1]
Manganese	679		(0.446)	[1]	620		(0.5)	[1]	821		(1.11)	[1]	2370		(0.605)	[1]
Molybdenum	-0.276	BJ	(0.348)	[1]	0.877	B	(0.39)	[1]	2.06	B	(0.865)	[1]	0.323	BJ	(0.471)	[1]
Nickel	37.7		(1.03)	[1]	38.2		(1.16)	[1]	10.5		(2.57)	[1]	31.2		(1.4)	[1]
Potassium	1160		(39.9)	[1]	998		(44.8)	[1]	1280		(99.4)	[1]	1130		(54.1)	[1]
Selenium	-8.66	BJ	(5.29)	[1]	-2.06	BJ	(5.93)	[1]	-0.0338	BJ	(13.2)	[1]	1.56	BJ	(7.17)	[1]
Silver	-0.574	BJ	(0.401)	[1]	-0.447	BJ	(0.45)	[1]	-1.09	BJ	(0.998)	[1]	-0.182	BJ	(0.544)	[1]
Sodium	146		(2.76)	[1]	119		(3.1)	[1]	83.4		(6.87)	[1]	83.6		(3.74)	[1]
Thallium	-4.72	BJ	(5.57)	[1]	-3.53	BJ	(6.25)	[1]	5.65	J	(13.9)	[1]	-3.16	BJ	(7.56)	[1]
Vanadium	90.2		(0.265)	[1]	87.5		(0.297)	[1]	60.5		(0.659)	[1]	80.4		(0.359)	[1]
Zinc	56.6		(0.314)	[1]	48.4		(0.352)	[1]	47.6		(0.782)	[1]	67.7		(0.426)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B2

RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)															
	DA DA-FS-03 KAL94-DA-SS-01 0 - 0.5				DA DA-FS-18 KAL94-DA-SS-02 0 - 0.5				DA DA-FS-24 KAL94-DA-SS-03 0 - 0.5				DA DA-FS-25 KAL94-DA-SS-04 0 - 0.5			
ASTMD2216 - Modified (percent)																
Percent moisture	13.5		(0)	[1]	10.4		(0)	[1]	17.3		(0)	[1]	11.1		(0)	[1]
SW6010 - Metals (mg/kg)																
Aluminum	11000		(2.66)	[1]	8740		(2.57)	[1]	17600		(2.18)	[1]	14500		(2.61)	[1]
Antimony	3.56	BJ	(5.65)	[1]	3.19	BJ	(5.45)	[1]	-1.81	BJ	(4.63)	[1]	-1.53	BJ	(5.54)	[1]
Arsenic	10.7		(3.34)	[1]	17.6		(3.23)	[1]	-1.38	BJ	(2.74)	[1]	-7.47	BJ	(3.28)	[1]
Barium	473		(0.0671)	[1]	600		(0.0648)	[1]	432		(0.0551)	[1]	1610		(0.0659)	[1]
Beryllium	0.309	B	(0.0317)	[1]	0.203	B	(0.0306)	[1]	0.507	B	(0.026)	[1]	0.446	B	(0.0311)	[1]
Cadmium	-0.343	BJ	(0.359)	[1]	0.0279	BJ	(0.346)	[1]	-0.0332	BJ	(0.294)	[1]	0.366	B	(0.352)	[1]
Calcium	2900		(1.32)	[1]	1750		(1.27)	[1]	7040		(1.08)	[1]	5080		(1.29)	[1]
Chromium	21.8		(0.189)	[1]	12.7		(0.183)	[1]	15.7		(0.155)	[1]	15.8		(0.186)	[1]
Cobalt	7.1		(0.518)	[1]	7.22		(0.501)	[1]	14.7		(0.425)	[1]	11.7		(0.509)	[1]
Copper	63.5		(0.484)	[1]	62.3		(0.467)	[1]	35.3		(0.397)	[1]	43.2		(0.475)	[1]
Iron	25000		(0.49)	[1]	18100		(0.473)	[1]	33100		(0.402)	[1]	23600		(0.481)	[1]
Lead	25.1		(2.04)	[1]	10.2		(1.97)	[1]	20.3		(1.68)	[1]	18.3		(2.01)	[1]
Magnesium	4150		(9.28)	[1]	4200		(8.96)	[1]	6090		(7.61)	[1]	4880		(9.1)	[1]
Manganese	313		(0.474)	[1]	478		(0.458)	[1]	801		(0.389)	[1]	542		(0.466)	[1]
Molybdenum	4.37	B	(0.37)	[1]	2.14	B	(0.357)	[1]	1.48	B	(0.303)	[1]	1.07	B	(0.363)	[1]
Nickel	21.8		(1.1)	[1]	22.9		(1.06)	[1]	17		(0.901)	[1]	16.6		(1.08)	[1]
Potassium	1430		(42.5)	[1]	859		(41)	[1]	1040		(34.8)	[1]	1090		(41.7)	[1]
Selenium	12.4		(5.62)	[1]	-7.56	BJ	(5.43)	[1]	-13.1	BJ	(4.61)	[1]	-13.8	BJ	(5.52)	[1]
Silver	-0.0472	BJ	(0.427)	[1]	-0.247	BJ	(0.412)	[1]	-0.276	BJ	(0.35)	[1]	-0.306	BJ	(0.419)	[1]
Sodium	44.3		(2.94)	[1]	27.2		(2.84)	[1]	92.8		(2.41)	[1]	74		(2.88)	[1]
Thallium	-3.25	BJ	(5.93)	[1]	-4.96	BJ	(5.72)	[1]	0.0933	J	(4.86)	[1]	6.54		(5.82)	[1]
Vanadium	47.7		(0.282)	[1]	22.5		(0.272)	[1]	52.7		(0.231)	[1]	40.7		(0.276)	[1]
Zinc	284		(0.334)	[1]	67.7		(0.323)	[1]	131		(0.274)	[1]	175'		(0.328)	[1]

Compiled: 26 January 1995

() = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B2 RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)															
	DA DA-FS-31 KAL94-DA-SS-05 0 - 0.5				DA DA-FS-34 KAL94-DA-SS-06 0 - 0.5				EQ EQ-FS-02 KAL94-EQ-SS-01 0 - 0.5				EQ EQ-FS-03 KAL94-EQ-SS-02 0 - 0.5			
ASTMD2216 - Modified (percent)																
Percent moisture	15.3		(0)	[1]	22.8		(0)	[1]	8.32		(0)	[1]	10.3		(0)	[1]
SW6010 - Metals (mg/kg)																
Aluminum	20300		(2.63)	[1]	24000		(2.95)	[1]	19500		(2.51)	[1]	17500		(2.58)	[1]
Antimony	-3.87	BJ	(5.58)	[1]	2.48	BJ	(6.27)	[1]	-3.4	BJ	(5.33)	[1]	-3.47	BJ	(5.49)	[1]
Arsenic	-5.53	BJ	(3.31)	[1]	-26.2	BJ	(3.72)	[1]	4.93		(3.16)	[1]	2.85	J	(3.25)	[1]
Barium	224		(0.0664)	[1]	235		(0.0746)	[1]	576		(0.0634)	[1]	574		(0.0653)	[1]
Beryllium	0.467	B	(0.0313)	[1]	0.557	B	(0.0352)	[1]	0.377	B	(0.0299)	[1]	0.417	B	(0.0308)	[1]
Cadmium	0.189	BJ	(0.355)	[1]	0.414	B	(0.399)	[1]	0.0418	BJ	(0.339)	[1]	0.423	B	(0.349)	[1]
Calcium	10000		(1.3)	[1]	8740		(1.46)	[1]	10800		(1.24)	[1]	9940		(1.28)	[1]
Chromium	26.8		(0.187)	[1]	28.1		(0.211)	[1]	23.1		(0.179)	[1]	21.5		(0.184)	[1]
Cobalt	17.4		(0.512)	[1]	14.3		(0.576)	[1]	16.7		(0.489)	[1]	15.9		(0.504)	[1]
Copper	24.4		(0.478)	[1]	21.9		(0.538)	[1]	114		(0.456)	[1]	126		(0.47)	[1]
Iron	31100		(0.485)	[1]	32300		(0.545)	[1]	30500		(0.463)	[1]	29300		(0.477)	[1]
Lead	10.8		(2.02)	[1]	13.3		(2.27)	[1]	14.7		(1.93)	[1]	36.1		(1.99)	[1]
Magnesium	6650		(9.17)	[1]	6250		(10.3)	[1]	9210		(8.75)	[1]	8360		(9.02)	[1]
Manganese	393		(0.469)	[1]	267		(0.527)	[1]	831		(0.448)	[1]	669		(0.461)	[1]
Molybdenum	0.96	B	(0.365)	[1]	1.68	B	(0.411)	[1]	0.993	B	(0.349)	[1]	0.778	B	(0.36)	[1]
Nickel	21.4		(1.09)	[1]	24.3		(1.22)	[1]	30.9		(1.04)	[1]	24.5		(1.07)	[1]
Potassium	907		(42)	[1]	990		(47.2)	[1]	759		(40.1)	[1]	803		(41.3)	[1]
Selenium	-2.79	BJ	(5.56)	[1]	-3.88	BJ	(6.25)	[1]	-9.61	BJ	(5.31)	[1]	1.32	BJ	(5.47)	[1]
Silver	-0.297	BJ	(0.422)	[1]	-0.416	BJ	(0.474)	[1]	-0.715	BJ	(0.402)	[1]	-0.39	BJ	(0.415)	[1]
Sodium	107		(2.9)	[1]	116		(3.26)	[1]	121		(2.77)	[1]	129		(2.86)	[1]
Thallium	-7.27	BJ	(5.86)	[1]	-4.3	BJ	(6.59)	[1]	-6.28	BJ	(5.59)	[1]	-8.12	BJ	(5.77)	[1]
Vanadium	92.8		(0.278)	[1]	99.6		(0.313)	[1]	69.2		(0.266)	[1]	67.1		(0.274)	[1]
Zinc	125		(0.33)	[1]	51.2		(0.371)	[1]	127		(0.315)	[1]	258		(0.325)	[1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B2

RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)																
	EQ EQ-FS-05 KAL94-EQ-SS-03 0 - 0.5				EQ EQ-FS-08 KAL94-EQ-SS-04 0 - 0.5				ET ET-FS-03 KAL94-ET-SS-01 0 - 0.5				ET ET-FS-05 KAL94-ET-SS-02 0 - 0.5			
ASTMD2216 - Modified (percent)																
Percent moisture	6.32		(0)	[1]	7.31		(0)	[1]	12		(0)	[1]	11.8		(0)	[1]
SW6010 - Metals (mg/kg)																
Aluminum	15800		(2.38)	[1]	15300		(2.48)	[1]	NA				NA			
Antimony	-1.14	BJ	(5.05)	[1]	1.14	BJ	(5.27)	[1]	NA				NA			
Arsenic	-9.18	BJ	(2.99)	[1]	4.15		(3.12)	[1]	NA				NA			
Barium	212		(0.06)	[1]	323		(0.0627)	[1]	NA				NA			
Beryllium	0.303	B	(0.0283)	[1]	0.423	B	(0.0296)	[1]	NA				NA			
Cadmium	0.579	B	(0.321)	[1]	1.13	B	(0.335)	[1]	NA				NA			
Calcium	8190		(1.18)	[1]	7080		(1.23)	[1]	NA				NA			
Chromium	23.4		(0.169)	[1]	20.6		(0.177)	[1]	NA				NA			
Cobalt	16.1		(0.463)	[1]	14.4		(0.484)	[1]	NA				NA			
Copper	157		(0.432)	[1]	113		(0.451)	[1]	NA				NA			
Iron	30800		(0.438)	[1]	29600		(0.458)	[1]	NA				NA			
Lead	28.9		(1.83)	[1]	56.5		(1.91)	[1]	NA				NA			
Magnesium	9400		(8.29)	[1]	8750		(8.66)	[1]	NA				NA			
Manganese	512		(0.424)	[1]	609		(0.443)	[1]	NA				NA			
Molybdenum	0.898	B	(0.33)	[1]	2.04	B	(0.345)	[1]	NA				NA			
Nickel	30.2		(0.982)	[1]	27.2		(1.03)	[1]	NA				NA			
Potassium	736		(37.9)	[1]	691		(39.6)	[1]	NA				NA			
Selenium	-2.97	BJ	(5.02)	[1]	-2.97	BJ	(5.25)	[1]	NA				NA			
Silver	-0.221	BJ	(0.381)	[1]	-0.358	BJ	(0.398)	[1]	NA				NA			
Sodium	114		(2.62)	[1]	75.6		(2.74)	[1]	NA				NA			
Thallium	-2.91	BJ	(5.3)	[1]	-0.219	BJ	(5.53)	[1]	NA				NA			
Vanadium	66.8		(0.252)	[1]	61		(0.263)	[1]	NA				NA			
Zinc	189		(0.299)	[1]	182		(0.312)	[1]	NA				NA			

Compiled: 26 January 1995

() = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B2

RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID LOCATION ID SAMPLE ID BEG. DEPTH - END DEPTH (FT.)																
	ET ET-FS-06 KAL94-ET-SS-03 0 - 0.5				ET ET-FS-10 KAL94-ET-SS-04 0 - 0.5				PS PS-FS-03 KAL94-PS-SS-01 0 - 0.5				PS PS-FS-04 KAL94-PS-SS-02 0 - 0.5				
ASTMD2216 - Modified (percent)																	
Percent moisture	13.4		(0)	[1]	8.1		(0)	[1]	16.6		(0)	[1]	13.8		(0)	[1]	
SW6010 - Metals (mg/kg)																	
Aluminum	NA				NA				15400		(2.65)	[1]	11000		(2.41)	[1]	
Antimony	NA				NA				16.3	B	(5.62)	[1]	-2.42	BJ	(5.11)	[1]	
Arsenic	NA				NA				30.8		(3.33)	[1]	24.4		(3.03)	[1]	
Barium	NA				NA				392		(0.0669)	[1]	303		(0.0608)	[1]	
Beryllium	NA				NA				0.602	B	(0.0316)	[1]	0.307	B	(0.0287)	[1]	
Cadmium	NA				NA				0.729	B	(0.357)	[1]	-0.247	BJ	(0.325)	[1]	
Calcium	NA				NA				28200		(1.31)	[1]	1300		(1.19)	[1]	
Chromium	NA				NA				34.8		(0.189)	[1]	21.7		(0.172)	[1]	
Cobalt	NA				NA				14.4		(0.516)	[1]	4.56		(0.469)	[1]	
Copper	NA				NA				108		(0.482)	[1]	65.2		(0.438)	[1]	
Iron	NA				NA				28800		(0.488)	[1]	31000		(0.444)	[1]	
Lead	NA				NA				121		(2.04)	[1]	25.2		(1.85)	[1]	
Magnesium	NA				NA				7350		(9.24)	[1]	3720		(8.4)	[1]	
Manganese	NA				NA				684		(0.472)	[1]	225		(0.43)	[1]	
Molybdenum	NA				NA				2.93	B	(0.368)	[1]	4.56	B	(0.335)	[1]	
Nickel	NA				NA				31		(1.09)	[1]	23.5		(0.995)	[1]	
Potassium	NA				NA				1180		(42.3)	[1]	1660		(38.5)	[1]	
Selenium	NA				NA				2.96	BJ	(5.6)	[1]	-0.657	BJ	(5.09)	[1]	
Silver	NA				NA				-0.809	BJ	(0.425)	[1]	-0.14	BJ	(0.386)	[1]	
Sodium	NA				NA				132		(2.92)	[1]	41.1		(2.66)	[1]	
Thallium	NA				NA				-13.1	BJ	(5.9)	[1]	-4.78	BJ	(5.37)	[1]	
Vanadium	NA				NA				58		(0.28)	[1]	53.4		(0.255)	[1]	
Zinc	NA				NA				211		(0.333)	[1]	68.7		(0.302)	[1]	

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B2

RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID															
	LOCATION ID	PS			PS			SO			TG					
	SAMPLE ID	PS-FS-05			PS-FS-08			SO-SS-01			TG-FS-06					
		KAL94-PS-SS-03			KAL94-PS-SS-04			KAL94-SO-SS-01			KAL94-TG-SS-01					
	BEG. DEPTH - END DEPTH (FT.)	0 - 0.5			0 - 0.5			0 - 0.5			0 - 0.5					
ASTMD2216 - Modified (percent)																
Percent moisture		10.8		(0)	[1]	12.4		(0)	[1]	45.8		(0)	[1]	15.2		(0)	[1]
SW6010 - Metals (mg/kg)																
Aluminum		26100		(2.51)	[1]	11300		(2.72)	[1]	9530		(3.89)	[1]	10700		(2.21)	[1]
Antimony		0.435	BJ	(5.34)	[1]	-0.255	BJ	(5.77)	[1]	257		(8.25)	[1]	-0.455	BJ	(4.7)	[1]
Arsenic		-7.52	BJ	(3.16)	[1]	41.7		(3.42)	[1]	31.9		(4.89)	[1]	14.9		(2.78)	[1]
Barium		214		(0.0635)	[1]	296		(0.0686)	[1]	553		(0.0982)	[1]	550		(0.0559)	[1]
Beryllium		0.508	B	(0.03)	[1]	0.261	B	(0.0324)	[1]	0.127	B	(0.0463)	[1]	0.275	B	(0.0264)	[1]
Cadmium		-0.167	BJ	(0.34)	[1]	-0.0138	BJ	(0.367)	[1]	-0.487	BJ	(0.525)	[1]	0.667	B	(0.299)	[1]
Calcium		17000		(1.25)	[1]	1500		(1.34)	[1]	9140		(1.92)	[1]	3910		(1.1)	[1]
Chromium		29.7		(0.179)	[1]	18.5		(0.194)	[1]	57.4		(0.277)	[1]	14.9		(0.158)	[1]
Cobalt		24.2		(0.491)	[1]	9.21		(0.53)	[1]	5.95		(0.758)	[1]	9.06		(0.432)	[1]
Copper		168		(0.458)	[1]	66.3		(0.494)	[1]	226		(0.707)	[1]	62.6		(0.403)	[1]
Iron		45900		(0.464)	[1]	29800		(0.501)	[1]	91600		(0.717)	[1]	21700		(0.408)	[1]
Lead		10.3		(1.93)	[1]	18.9		(2.09)	[1]	219		(2.99)	[1]	23.9		(1.7)	[1]
Magnesium		13500		(8.78)	[1]	3660		(9.48)	[1]	4300		(13.6)	[1]	4360		(7.73)	[1]
Manganese		704		(0.449)	[1]	281		(0.485)	[1]	169		(0.694)	[1]	493		(0.395)	[1]
Molybdenum		0.972	B	(0.35)	[1]	5.52	B	(0.378)	[1]	4.64	B	(0.541)	[1]	2.22	B	(0.308)	[1]
Nickel		33.4		(1.04)	[1]	40.1		(1.12)	[1]	18.4		(1.61)	[1]	27.7		(0.915)	[1]
Potassium		1240		(40.2)	[1]	1880		(43.4)	[1]	1140		(62.1)	[1]	850		(35.4)	[1]
Selenium		-7.87	BJ	(5.32)	[1]	-4.36	BJ	(5.74)	[1]	-19.8	BJ	(8.22)	[1]	-6.98	BJ	(4.68)	[1]
Silver		-0.559	BJ	(0.404)	[1]	-0.204	BJ	(0.436)	[1]	17.5		(0.624)	[1]	-0.302	BJ	(0.355)	[1]
Sodium		177		(2.78)	[1]	45.9		(3)	[1]	2960		(4.29)	[1]	77.5		(2.45)	[1]
Thallium		-0.585	BJ	(5.61)	[1]	4.01	J	(6.06)	[1]	0.82	J	(8.67)	[1]	5.42		(4.94)	[1]
Vanadium		117		(0.267)	[1]	57		(0.288)	[1]	26.9		(0.412)	[1]	43.6		(0.235)	[1]
Zinc		65.3		(0.316)	[1]	82.8		(0.341)	[1]	157		(0.488)	[1]	258		(0.278)	[1]

Compiled: 26 January 1995

() = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE B2 RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES, Kalakaket RRS 1994.

PARAMETER	SITE ID: VM			VM			VM			VM		
	LOCATION ID: VM-FS-01			VM-FS-03			VM-FS-06			VM-FS-08		
	SAMPLE ID: KAL94-VM-SS-01			KAL94-VM-SS-02			KAL94-VM-SS-03			KAL94-VM-SS-04		
	BEG. DEPTH - END DEPTH (FT.): 0 - 0.5			0 - 0.5			0 - 0.5			0 - 0.5		
ASTMD2216 - Modified (percent)												
Percent moisture	10.1		(0) [1]	12.3		(0) [1]	23.8		(0) [1]	13.1		(0) [1]
SW6010 - Metals (mg/kg)												
Aluminum	11800		(2.6) [1]	9470		(2.4) [1]	46200		(3.02) [1]	8110		(2.2) [1]
Antimony	-2.85	BJ	(5.52) [1]	-1.16	BJ	(5.1) [1]	7.72	B	(6.41) [1]	-0.0935	BJ	(4.68) [1]
Arsenic	-5.21	BJ	(3.27) [1]	5.72		(3.02) [1]	-25.1	BJ	(3.8) [1]	3.06		(2.77) [1]
Barium	947		(0.0657) [1]	665		(0.0607) [1]	125		(0.0762) [1]	432		(0.0557) [1]
Beryllium	0.256	B	(0.031) [1]	0.183	B	(0.0286) [1]	0.803	B	(0.036) [1]	0.0887	B	(0.0263) [1]
Cadmium	1.08	B	(0.351) [1]	0.116	BJ	(0.324) [1]	0.925	B	(0.407) [1]	0.385	B	(0.298) [1]
Calcium	3450		(1.29) [1]	2770		(1.19) [1]	37700		(1.49) [1]	1240		(1.09) [1]
Chromium	73.6		(0.185) [1]	15.9	B	(0.171) [1]	118	B	(0.215) [1]	11.6	B	(0.157) [1]
Cobalt	11		(0.507) [1]	8.98		(0.468) [1]	13.2		(0.589) [1]	4.53		(0.43) [1]
Copper	62.2		(0.473) [1]	65.4		(0.437) [1]	24.8		(0.549) [1]	45.6		(0.401) [1]
Iron	26800		(0.48) [1]	20500		(0.443) [1]	28900		(0.557) [1]	16300		(0.407) [1]
Lead	25.8		(2) [1]	114		(1.85) [1]	200		(2.32) [1]	52.2		(1.7) [1]
Magnesium	5640		(9.08) [1]	3990		(8.38) [1]	4520		(10.5) [1]	3660		(7.7) [1]
Manganese	520		(0.464) [1]	388		(0.429) [1]	305		(0.539) [1]	323		(0.394) [1]
Molybdenum	3.21	B	(0.362) [1]	2.9	B	(0.334) [1]	1.82	B	(0.42) [1]	2.62	B	(0.307) [1]
Nickel	38.4		(1.08) [1]	25.3		(0.993) [1]	72.4		(1.25) [1]	19.5		(0.911) [1]
Potassium	1190		(41.6) [1]	1030		(38.4) [1]	1300		(48.2) [1]	793		(35.2) [1]
Selenium	3.53	J	(5.5) [1]	2.29	J	(5.08) [1]	1.34	J	(6.38) [1]	-2.06	BJ	(4.66) [1]
Silver	-0.134	BJ	(0.417) [1]	-0.0461	BJ	(0.385) [1]	-0.117	BJ	(0.484) [1]	-0.275	BJ	(0.354) [1]
Sodium	55.4		(2.87) [1]	41		(2.65) [1]	158		(3.33) [1]	20.4		(2.44) [1]
Thallium	-4.51	BJ	(5.8) [1]	-1.79	BJ	(5.36) [1]	-8.83	BJ	(6.73) [1]	1.85	J	(4.92) [1]
Vanadium	38.3		(0.276) [1]	29.2		(0.255) [1]	75.4		(0.32) [1]	19.2		(0.234) [1]
Zinc	371		(0.327) [1]	212		(0.302) [1]	192		(0.379) [1]	114		(0.277) [1]

Compiled: 26 January 1995 () = Detection Limit [] = Dilution Factor ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

APPENDIX C

Methodology for the Calculation of Background UTLs

1.0 INTRODUCTION

The analysis of data for the preliminary assessment/site inspection (PA/SI) conducted at Kalakaket Creek RRS included a statistical comparison of raw analytical data from areas of concern (AOCs) to data from unaffected areas (background) for inorganic constituents. Individual concentrations from the potentially affected AOCs were compared to an upper limit calculated from background concentrations. This upper limit is called an upper tolerance limit (UTL). Section 2.0 of this appendix presents an explanation of UTLs and their use in the PA/SI. Section 3.0 discusses the methodology for the calculation of UTLs.

2.0 DESCRIPTION OF UPPER TOLERANCE LIMITS

Statistical comparisons may be used to compare results from different sample populations. One approach involves comparing individual results from each potentially affected AOC to calculated UTLs for background concentrations. This type of comparison is referred to as an extreme value test and is used to identify potentially contaminated areas for the PA/SI.

Extreme value tests require estimating the upper extreme of a given population (in this case background concentrations). When the distribution of the background data appear to follow a known distribution (for example, normal or lognormal), the known characteristics of the distribution can be used to estimate the concentration below which a given proportion of the data are expected to fall (this proportion is described as the coverage). In this PA/SI, parametric UTLs represent the upper 95% confidence limit for 95% coverage. That is, one can be 95% confident that 95% of the background concentrations for the analyte of interest will fall below the UTL. For data that do not follow a known distribution, nonparametric UTLs are calculated. At the 95% confidence level, the coverage provided by a nonparametric

UTL generally is less than 95%. Although the nonparametric UTL is chosen to maximize the coverage, 95% coverage is often not achievable given the sample size.

When the coverage is high (95% or greater), there is a relatively small chance, on the order of 1 in 20, that a sample taken from an uncontaminated area will have an inorganic concentration greater than the UTL. When individual sample results are compared to UTLs, they are interpreted to indicate the presence of potential contamination when they exceed the UTLs.

3.0 CALCULATION OF BACKGROUND UTLs

UTLs were calculated for the background data so that individual AOC results could be compared to the background levels. In calculating the UTLs, the distribution of the data must be considered. Normality tests were performed on the data and the logs of the data using the Shapiro-Wilk test (Gilbert, 1987). UTLs were calculated for background data sets that were normally distributed using the formula for normal distributions:

$$\mathbf{UTL = \bar{x} + (K \times s)}$$

where **x** is the estimated sample mean, **K** is the tolerance factor, and **s** is the estimated standard deviation. The same formula was also used for lognormally distributed data sets, substituting the logs of the data. The exponent of the result was then taken to arrive at the lognormal UTL. Normal and lognormal UTLs were calculated for the 95th percentile (i.e., a coverage of 95%) with 95% confidence.

The low number of samples collected for background prompted a change from more traditional assessments of normality. For this study, an alpha level of 0.01 was used instead of the more traditional 0.05. This change from a more traditional

alpha of 0.05 is reasonable because the Shapiro-Wilk test is too conservative with only four points. If additional sample data were collected, the test would be more appropriate and a better understanding of the background data could be made. Additional data may prove, or disprove, the assumption of normality resulting in the calculation of different UTLs.

For results that were not normal, the data were tested for lognormality after substituting half the detection limit for negative numbers. These proxy values were used to avoid problems with calculating logarithms of negative numbers.

The results of the UTL calculations are presented in Table C-1.

4.0 REFERENCES

Gilbert, Richard O., *Statistical methods for environmental pollution monitoring.* Van Nostrand Reinhold Company Inc., New York, New York. 1987.

Table C-1
Background Summary Statistics for Kalakaket Creek RRS Soils

Analyte	n	% > SQL	Minimum (mg/kg)	Maximum (mg/kg)	Mean (mg/kg)	Std. Dev. (mg/kg)	UTL (mg/kg)	Test Type	Prob. Normal	Coverage (%)
Aluminum	4	100	7350	24,200	19,488	8105	24,200	Non-parametric	0.0069	47.3
Antimony	4	0	-10.7	3.48	-1.69	6.21	30.3	Normal	0.2084	95
Arsenic	4	25	-8.49	29.7	2.31	18.3	96.6	Normal	0.0142	95
Barium	4	100	191	256	223	26.8	361	Normal	0.9385	95
Beryllium	4	100	0.45	0.68	0.54	0.10	1.08	Normal	0.3951	95
Cadmium	4	0	-0.71	-0.01	-0.20	0.34	1.55	Normal	0.0173	95
Calcium	4	100	4450	10,600	7418	2735	21,500	Normal	0.8181	95
Chromium	4	100	19.0	56.2	39.3	15.4	118	Normal	0.7399	95
Cobalt	4	100	15.9	40.1	25.5	10.4	79.0	Normal	0.4804	95
Copper	4	100	23.1	90.1	61.5	29.1	211	Normal	0.7495	95
Iron	4	100	16,200	41,000	32,150	10931	88,400	Normal	0.1531	95
Lead	4	75	0.79	15.3	8.71	5.97	39.4	Normal	0.6032	95
Magnesium	4	100	1900	9730	7173	3676	26,100	Normal	0.1325	95
Manganese	4	100	620	2370	1123	836	5420	Normal	0.0194	95
Molybdenum	4	50	-0.28	2.06	0.75	0.99	5.86	Normal	0.8218	95
Nickel	4	100	10.5	38.2	29.4	13.0	96.3	Normal	0.0974	95
Potassium	4	100	998	1280	1142	116	1740	Normal	0.8882	95
Selenium	4	0	-8.66	1.56	-2.30	4.49	20.8	Normal	0.4034	95
Silver	4	0	-1.09	-0.18	-0.57	0.38	1.39	Normal	0.7150	95
Sodium	4	100	83.4	146	108	30.4	264	Normal	0.2795	95
Thallium	4	0	-4.72	5.65	-1.44	4.77	23.1	Normal	0.0439	95
Vanadium	4	100	60.5	90.2	79.7	13.4	148	Normal	0.2685	95
Zinc	4	100	47.6	67.7	55.1	9.35	103	Normal	0.3337	95